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FARMING FOR THE FUTURE

1985 PROGRESS REPORT

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FARMING FOR THE FUTURE PROGRESS REPORT 1985

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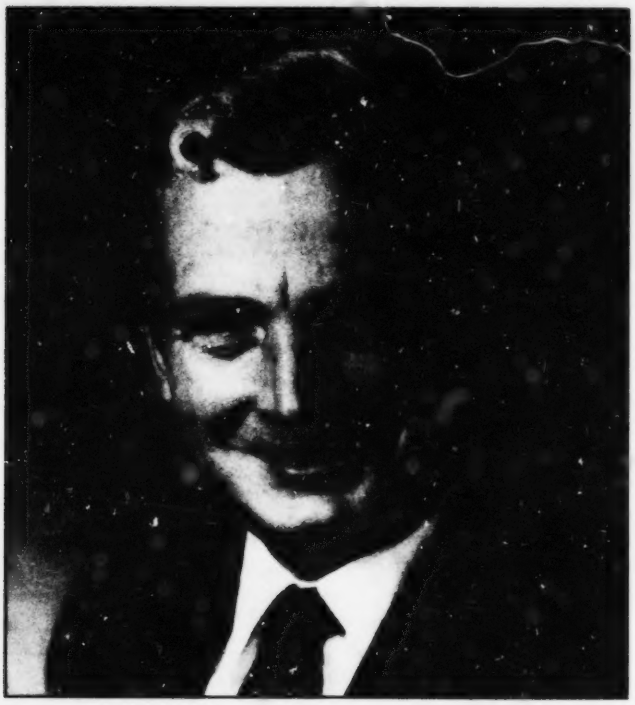
CHAIRMAN'S REPORT



As Chairman of the Agricultural Research Council of Alberta (ARCA), I'm pleased to present Farming for the Future's sixth annual Progress Report, which covers the operating year April 1, 1984 to March 31, 1985.

In the first year of its renewed mandate, the program maintained its broad objective of supporting research beneficial to Alberta's agriculture industry. Through its two main funding vehicles, the Research Program and the On-Farm Demonstration Program, Farming for the Future continued to play a major role in the development of agricultural technology for the province, while working to transfer that technology to the farming sector.

The importance of this work is reflected in the continuing support it has received from the Alberta Government. In 1984-85, Farming for the Future received $5 million from the Alberta Heritage Savings Trust Fund, and a second $5 million allocation has been approved for 1985-86. The program's current mandate is scheduled to expire March 31, 1987; however, a proposal to extend the program into the early 1990s is now under discussion.

The level of support granted Farming for the Future has allowed the program to pursue a wide range of funding activities since the start of its first mandate in 1979. Today, I believe the broad objectives of the program are as relevant as ever; however, with six years of progress has come the need to re-examine goals and priorities and to establish direction for future research support. Consequently, a number of program policies and procedures were revised at the annual meeting of the Agricultural Research Council in February 1985.

Prominent among these changes is the implementation of more stringent requirements for researchers in the submission of final project reports. These new requirements are appropriate to the fiscal restraint currently being exercised at all levels of government, as they will provide for more responsible use of program funds and should ensure quality returns from money invested in research. This is particularly important today as continuing cutbacks in research resources are becoming a major source of concern for the scientific and agricultural communities.

Another significant change which occurred in the fiscal year was the transfer in April 1984 of various financial and administrative services for the program from the Alberta Research Council to the Research Division of Alberta Agriculture. As well as reducing operating costs, this changeover has resulted in increased contact between researchers and Research Division staff and improved financial control.

1984-85 also saw the first Farming for the Future Research Conference, which was staged by the Agricultural Research Council in October 1984. The success of this meeting, which was designed to heighten public awareness of program activities and provide a forum for discussion of research policy, has prompted the Council to make the conference an annual event. Planning is well underway for the second conference, which has been scheduled for October 1985.

With the close of the fiscal year have come a number of changes in the membership of the Agricultural Research Council. As ARCA Chairman, I would like to extend special thanks to Dr. Art Olson, who is stepping down after six years as Council Secretary. Dr. Olson's long and dedicated service is recognized and appreciated by all involved with Farming for the Future, and his knowledge and talent have undoubtedly been instrumental in the past and present success of the program.

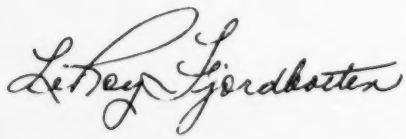
Assuming the position of Secretary is Dr. Jim Mahone, director of Alberta Agriculture's Research Division. I am confident that Dr. Mahone will be as successful in this position as his predecessor.

Two producer members, Mr. Jack Butler and Mr. Lud Prudek, departed the ARCA in 1984-85. I would like to extend my most sincere thanks to these well-respected and well-established members of the farming community for many hours of hard work on behalf of Farming for the Future. Their judgement, enthusiasm, and expertise will be missed by all on the Council.

I would also like to welcome Mr. Jack Newman of Fort Vermilion and Mr. Elden Kaun of Penhold, who began their terms on the ARCA in 1984. We are fortunate to gain the advice of two such experienced and successful producers, and I look forward to working with both in coming months.

Finally, I would like to express my gratitude to the producers, scientists, ARCA members and many others who worked in one capacity or another to make the program a success again in 1984-85. These individuals can be justly proud of their contributions to the agriculture sector and to the people of Alberta.

Farming for the Future begins its second mandate faced with an undiminished need for agricultural research in the province. As national and international markets become increasingly competitive, the demand for new and improved technology continues to grow. I am confident that in coming months and years Farming for the Future will continue to satisfy that need, to ensure a prosperous future for the farming community and the province as a whole.



LeRoy Fjordbotten
Minister of Agriculture
Chairman, Agricultural Research Council of Alberta
September 1985

INTRODUCTION

Farming for the Future was established in 1977 to meet one of the most fundamental needs of Alberta's agriculture industry: research.

Since that time, this Alberta Heritage Savings Trust Fund program has grown considerably in size and scope, but has retained its original objectives of improving net farm income and promoting the viability of the agriculture sector through support of related research endeavours.

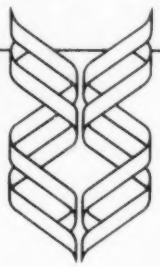
In pursuit of these objectives, more than $22.5 million was awarded through Farming for the Future in the course of the program's first (1979-84) mandate to support 343 research and demonstration projects. 1984-85 marked the first year of the program's new three-year term.

During the year, the Research Program — the larger of Farming for the Future's two funding vehicles — continued to support basic and applied agricultural experimentation conducted by research scientists. In all, 101 such projects received grants totalling $4.34 million. Funding of $4.8 million has been approved for 66 renewed and 37 new Research Program studies in 1985-86.

The second subprogram of Farming for the Future, the On-Farm Demonstration Program, remained active throughout the year. A total of $315,866 was awarded to support 104 demonstration projects designed to facilitate the adoption of new agricultural practices and technology by the farming community.

The success of the On-Farm Demonstration Program in 1984-85 confirmed its effectiveness as a vehicle for technology transfer. This program is, however, only one of a number of methods employed by Farming for the Future to effect dissemination of research findings. Technical information is also conveyed to producers by project managers and by line divisions of Alberta Agriculture, and a variety of informative articles are regularly published under the program.

Farming for the Future is administered by the Agricultural Research Council of Alberta, a 15-member body comprised of scientists, producers, legislators and representatives of the public sector. The Council is chaired by the Hon. LeRoy Fjordbotten, Minister of Agriculture for Alberta.



AGRICULTURAL RESEARCH COUNCIL OF ALBERTA ACTIVITIES

In addition to their regular duties of reviewing and approving project proposals and establishing policy and procedures for Farming for the Future, members of the Agricultural Research Council of Alberta were involved in a number of related activities in 1984-85.

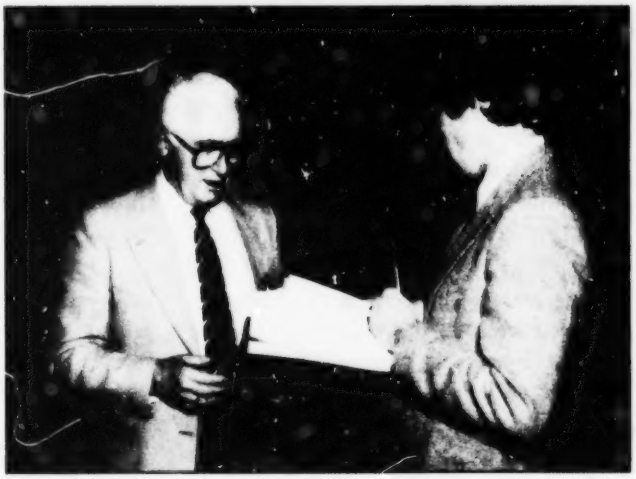
In July, Council members visited research facilities at the University of Alberta's Edmonton campus and at the University's research station at Ellerslie. The tour also included the Lacombe facilities of Alberta Agriculture and Agriculture Canada.

To promote public awareness of program activities, three publications describing Farming for the Future research were issued by the ARCA as inserts in *Country Guide* magazine. In addition, the 1984 *Progress Report* was published and press releases were issued highlighting the program and ARCA activities.

To provide a forum for discussion of research projects and policy, the ARCA hosted a major Farming for the Future Research Conference in October 1984. The conference was attended by representatives of the farming community, producer organizations, universities, private industry and government, and featured presentations by 12 program participants.

The conference proceedings were published and distributed. The success of the conference prompted the Council to make the event an annual one, and planning commenced for the next meeting, to be held in Lethbridge in October 1985.

The annual meeting of the ARCA was held in February 1985. At this meeting, Council members reviewed 215 Research Program project proposals, approving 103 of these for financial support in 1985-86. Policy matters were also discussed, including guidelines for submission and review of final reports, and future approaches to funding agricultural research.



Farming for the Future research conferences provide an opportunity to discuss research results and issues of importance to Alberta's agriculture industry.

RESEARCH PROGRAM

Applications for funding under Farming for the Future's Research Program are evaluated by any of nine program committees established by the Agricultural Research Council of Alberta for this purpose. The committees provide expertise in the areas of cereals and oilseeds; crop protection and entomology; forages; irrigation; land resources and engineering; ruminants; non-ruminants; processing, transportation, marketing and socio-economics; and special crops. After considering each proposal, the committees forward their recommendations to the ARCA for a final decision.

Projects supported by the Research Program generate scientific and technical information vital to the advancement of Alberta's agriculture sector. A complete list of projects funded during the second mandate appears in the section "Research Program Project Summaries." The following is a brief overview of research conducted in each of the nine program areas.

Cereals and Oilseeds

Alberta is the national leader in this major branch of the agriculture industry, producing an estimated 30.5 percent of Canada's total harvest of cereals and oilseeds in 1984. In dollar terms, this production generated $1.72 billion in cash receipts for producers in the province.

Research supported by Farming for the Future is designed to improve both productivity and efficiency in cereal and oilseed production. In 1984-85, the Research Program awarded $598,356 to support six such projects. Among these were a study directed at improving agronomic practices in northern Alberta, and research into development of canola and barley varieties adapted to specific regions of the province.

For 1985-86, $654,392 has been awarded to seven projects in this program area.

Crop Protection and Entomology

In this rapidly advancing field, the Research Program supports studies in disease, weed and insect control and research into improvement of performance in industries which employ beneficial insects (e.g., apiculture).

In 1984-85, $332,534 was allocated to 12 projects in these areas. Topics of study included development of diagnostic tests for potato diseases, control of canola seedling blight, and biological and chemical control of grasshoppers.

Funds totalling $427,090 have been awarded to 12 crop protection and entomology projects for 1985-86.

Scientists at federal and provincial research facilities are developing hardy, high yielding breeds of grains and oilseeds suited to Alberta growing conditions.

Forages

Besides generating an estimated $600 million annually for farmers in the province, production of forages in the form of tame hay, cereal silage, greenfeed and pasture plays an important part in Alberta's livestock industry. Certain forages are also important in controlling soil erosion and improving soil fertility.

Research in this commodity area is directed at increasing yields and improving harvesting and storage techniques. A total of $262,800 was awarded to seven forage-related projects in 1984-85, and $339,965 has been allocated for nine such studies in 1985-86.

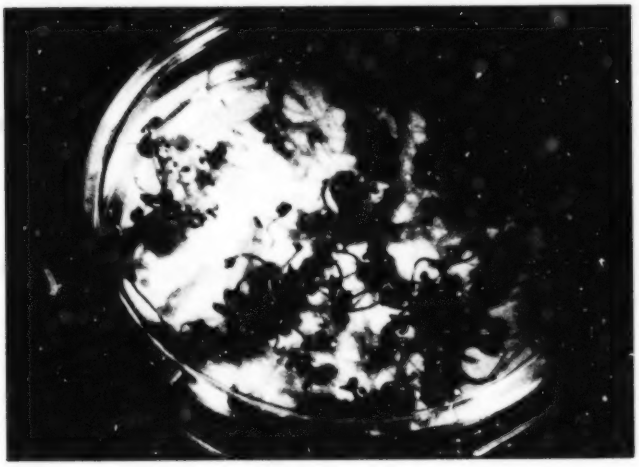
Projects conducted include research into improved management efficiency for cropping in the Peace River region, an evaluation of the effects on forages of storage and processing, and development of improved pasture species.

Irrigation

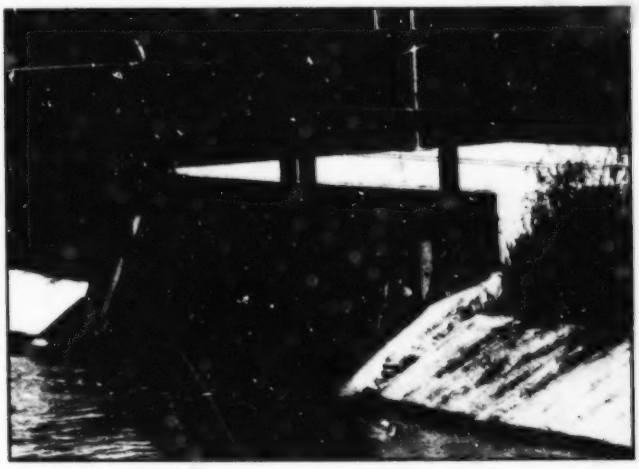
At the turn of the century, the advent of irrigation revolutionized the farming industry in southern Alberta. Today, there are 1.1 million acres of irrigated land in the province; this area, which comprises only four percent of Alberta's farm land base, accounts for approximately 20 percent of its agricultural production.

To help producers get maximum benefit from their irrigation systems, Farming for the Future supports research aimed at increasing water use efficiency, improving drainage and reducing damage from saline seepage. Four such projects were awarded $209,320 in 1984-85, including an evaluation of subsurface drainage criteria and design standards, and development work for automated irrigation control structures in small irrigation laterals.

Two irrigation-related projects have been allocated a total of $215,800 for 1985-86. Research in this area is often funded jointly with the Irrigation Council of Alberta.

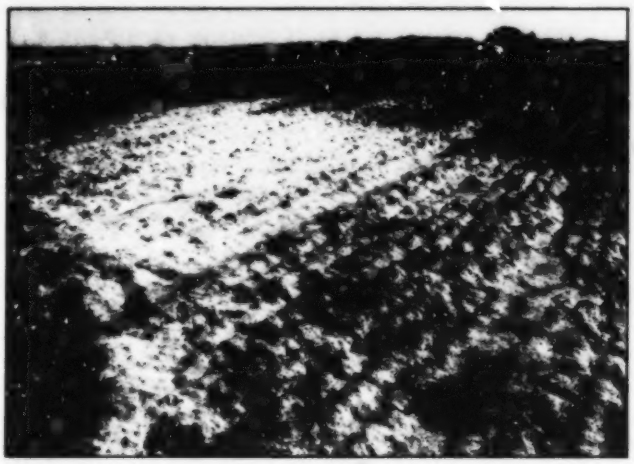


New plant tissue culture techniques are being used to breed plants ideally suited to Alberta's growing conditions. These alfalfa embryos have grown from cells provided by superior parent plants.



Reliable control structures are essential to proper irrigation. A simple and inexpensive technique was used in this project to automate small checkgates for improved water control.

With assistance from Farming for the Future, scientists at the University of Alberta are studying forage species, harvesting systems and feedstuff preservation and utilization practices that will optimize feed efficiency in cattle.



Farming for the Future funds are being used to study the dynamics of salt and water movement in soil in order to develop salinity control measures.

Land Resources and Engineering

The future of Alberta's agriculture industry depends on how the province's land resources are preserved and managed today. To promote the continued good health of the farming sector, the Research Program funds studies designed to improve management and utilization of land resources.

During the year, $671,166 was awarded to 15 projects in this area. Thirteen projects have been granted a total of $789,281 for 1985-86. Current efforts include studies on soil fertility, tillage practices, snow management for moisture conservation, and nitrogen utilization.

The Alberta swine industry provided $259 million in farm cash receipts in 1984. Several Farming for the Future projects are examining disease control, nutrition and reproduction in an effort to improve productivity in the hog industry.

Non-Ruminants

Non-ruminants account for a major portion of livestock production in the province. In 1984, cash receipts in the swine industry were estimated at $259 million. Sales in the poultry industry the same year totalled approximately $86 million, and egg production brought in $46 million.

Research in the areas of reproduction, management, disease control and feed utilization has played a major role in increasing productivity and product quality in the non-ruminant industry. The Research Program granted $284,421 to seven projects in these areas in 1984-85, and has allocated $424,178 for 11 projects in 1985-86.

Among the studies conducted during the year were development of a diagnostic test for porcine pneumonia, analysis of a water-soluble swine antibiotic, and evaluation of canola seed as an energy and protein source for laying hens.

Processing, Transportation, Marketing, and Socio-Economics

Improvements in processing, transportation and marketing will help maximize benefits accruing from primary agricultural production. To achieve a better understanding of the economic factors affecting the farming industry, the Research Program has awarded funding for studies in numerous related areas.

These include the effects of new processing procedures on beef quality, the economics of farm operations, and development of methods for analysis of contaminants in honey. Funding for 14 projects in this program area totalled $541,492 during the year. For 1985-86, 18 projects have been awarded a total of $576,705.

Ruminants

Production of ruminant livestock has traditionally been the mainstay of Alberta's agriculture sector. In 1984, the cattle industry contributed an estimated $1.8 billion to the province's total farm cash receipts, while sheep and lamb production brought in an estimated $6 million.

In recognition of the importance of ruminant production, research aimed at improving productivity in this sector receives extensive funding from Farming for the Future. The ARCA awarded $1.2 million to 30 ruminant projects in 1984-85, and has granted $1.1 million for 26 studies in 1985-86.

Typical projects centered on control of bovine respiratory disease in feedlots, factors influencing reproductive efficiency in beef cattle, and ruminant nutrition.

Special Crops

Production of special crops — such as potatoes, sugar beets, pulses and vegetables — is a growing industry in Alberta and plays a valuable role in diversifying the province's agriculture sector. Farm cash receipts from Alberta's special crops were estimated at $132 million for 1984.

In 1984-85, $230,480 was granted to support six projects in this area, and $266,356 has been allocated for five projects in 1985-86. Topics currently being studied include development of irrigated soybean and dryland safflower varieties adapted to growing conditions in the province, and evaluation of potato varieties for disease and nematode resistance, early maturity, and processing characteristics.

Dairy cows require a well-balanced ration for optimum milk production. One scientist is investigating the effects of frequency of feeding, use of growth hormones and delayed rebreeding on milk production and herd health.

Imported fresh and dried flowers are expensive. A researcher at Olds College is developing agronomic practices suited to Alberta conditions and perfecting processing techniques in an effort to encourage local production.

ON-FARM DEMONSTRATION PROGRAM

Projects funded through the On-Farm Demonstration Program are designed to expedite the transfer of research findings to the farming community, and are joint efforts between producers and Alberta Agriculture staff.

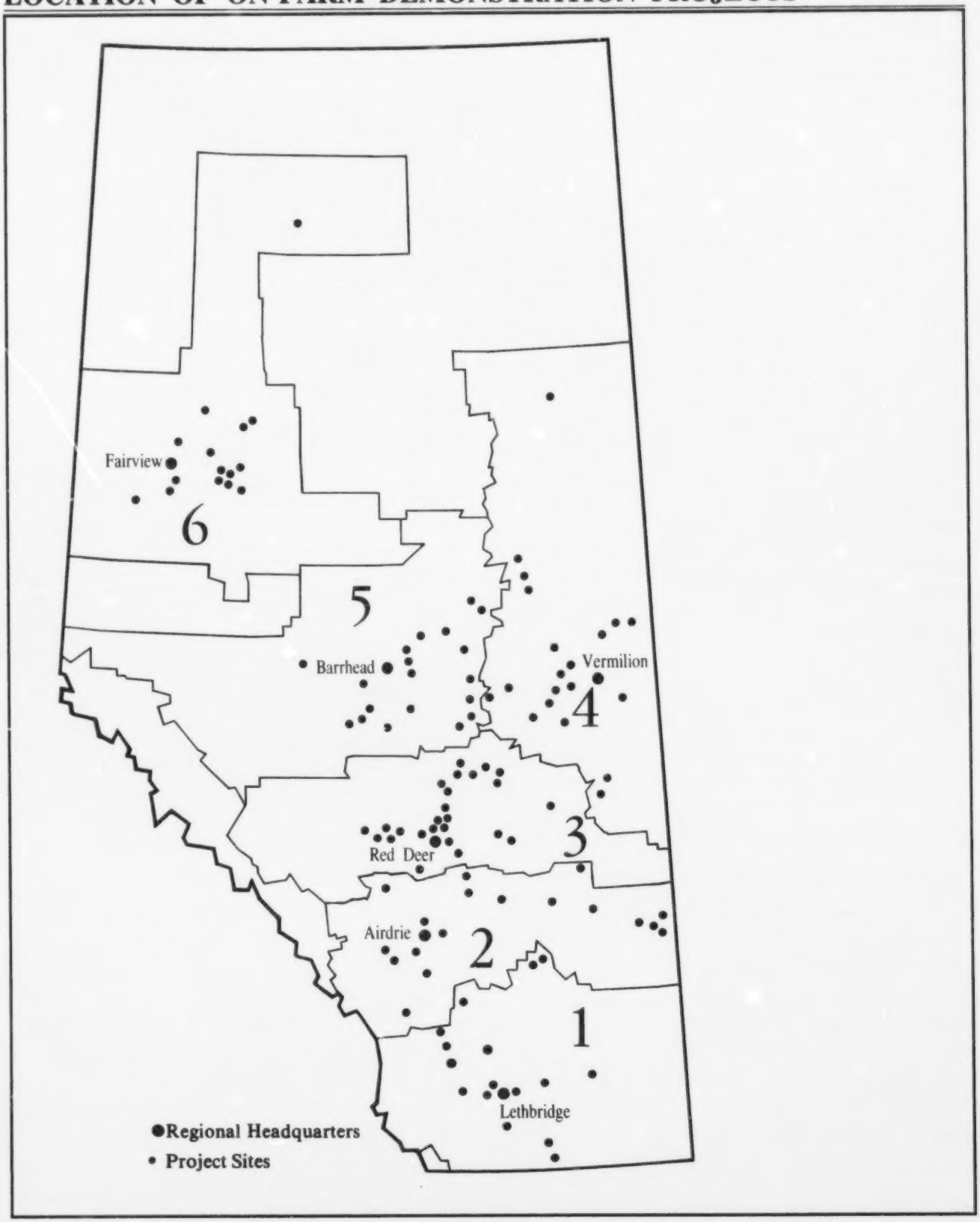
Demonstration projects are initiated and approved throughout the year. Regional Review Committees first evaluate project proposals, then forward their recommendations to the Secretary of the ARCA for a final decision. Applications are evaluated on the basis of relevance to the region's agricultural community, competence and experience of applicants, and the size, duration and cost of the proposed project.

The On-Farm Demonstration Program continues to receive an enthusiastic response from producers across the province. In 1984-85, $315,866 was awarded to 104 demonstration projects, and a budget of $400,000 has been approved for the program for 1985-86. A detailed list of projects funded through the On-Farm Demonstration Program is given in the section "On-Farm Demonstration Program Project Summaries."

Demonstration plots are being used to evaluate varieties, fertilizer applications, pest control, seeding rates and inoculation techniques for fababeans and field peas.

By learning to control reproductive cycles in ewes and reduce lamb mortality, producers will be able to increase the number of lambs available for market.

LOCATION OF ON-FARM DEMONSTRATION PROJECTS



RESEARCH PROGRAM PROJECT SUMMARIES

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
CEREALS AND OILSEEDS				
Development of Management Practices to Improve Cereal and Oilseed Productivity in the Peace River Region • to develop management practices that will improve canola and cereal productivity and quality in the Peace River region	R.I. Wolfe	Agriculture Canada — Beaverlodge	91,050	78,630
The Effects of Low Temperatures and Diurnal Fluctuations on the Germination and Emergence of Canola • to define the germination and emergence response of canola to low and diurnal temperature ranges	P.F. Mills	Agriculture Canada — Beaverlodge	31,906	29,500
Acceleration of Canola Variety Development for the Peace River and Southern Alberta Regions • to develop and evaluate superior, regionally adapted, high yielding, disease resistant, high nectar producing canola varieties for northern and southern Alberta	R.K. Downey R.S. Sadasivaiah D. Wilson	Agriculture Canada — Saskatoon, Beaverlodge and Lethbridge	375,000	375,000
Physiological Screening for Cold Hardiness in Winter Wheat and Triticale Germplasm • to screen a wide range of winter wheat and winter triticale germplasm for cold hardiness and select new gene combinations from wide crosses which can be incorporated into commercial varieties suitable for central Alberta conditions	F.M. Mederick T.H.H. Chen M.D. Lazar	Alberta Agriculture — Lacombe and Alberta Research Council — Edmonton	14,500	35,585
Identification of Low Temperature Tolerant and Early Flowering Canola Genotypes • to develop varieties of canola for central and northern Alberta which will establish uniform, early stands and mature early	Z.P. Kondra	University of Alberta — Edmonton	24,400	in progress
Breeding Soft White Spring Wheats for Western Canada • to develop a soft white spring wheat variety with improved leaf disease (stripe rust) and sprouting resistance	J.B. Thomas	Agriculture Canada — Lethbridge	61,500	75,900
Genetic Studies on Yield-Protein Relationships in Common Wheats • to investigate the relationship between wheat yield and protein content and to improve plant breeding techniques so that both of these characteristics can be improved at the same time	S. Kibite	Agriculture Canada — Lacombe		32,417
Studies of Extremely Strong Straw Strength in Semidwarf Six Row Barley • to compare a newly developed six-row semidwarf barley with commonly used barley lines for straw strength, resistance to lodging, tolerance to various levels of fertility, and strength of rooting system	K.G. Briggs	University of Alberta — Edmonton		27,360
CROP PROTECTION AND ENTOMOLOGY				
New Sensitive Assays Utilizing Specific Monoclonal Antibodies for Testing Potato Virus and Bacterial Diseases • to produce monoclonal antibodies specific to ring rot bacteria and potato viruses and to devise monoclonal antibody 'cocktails' whereby the presence of a whole range of potato viruses and bacteria can be analyzed in one or two tests	S.H. De Boer	Agriculture Canada — Vancouver	36,000	52,000
Potassium Chloride as a Means of Reducing Root Rot in Barley • to evaluate the potential benefits of applying relatively inexpensive chloride to help reduce barley yield losses resulting from root disease infestations	J.T. Harapiak	Western Co-operative Fertilizers Ltd. — Calgary	16,680	19,940

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Feasibility Study for Control of Root Maggots (*Delia* spp.) on Canola • to provide information for devising a pest management strategy against root maggots in canola crops	G.E. Ball	University of Alberta — Edmonton	38,742	19,915
Seedling Blight of Canola in Alberta • to identify and develop biological and chemical control measures for pathogens of canola seedling blight	J.P. Tewari	University of Alberta — Edmonton	31,000	56,800
A Long-Term Study of the Influence of Environmental Variables on Herbicide Efficacy • to examine herbicide efficacy and monitor environmental parameters to better define effects that environmental variables exert on herbicide performance in Alberta	W.H. Vanden Born	University of Alberta — Edmonton	15,800	21,800
Life History and Phenology of the European Corn Borer in Southern Alberta • to collect information about the characteristics of the European corn borer in order to implement long-term, cost-effective pest management strategies	J.R. Spence	University of Alberta — Edmonton	23,334	in progress
Development of a Monitoring Program for Control of the Sugar Beet Root Maggot in Sugar Beets • to implement a field monitoring/prediction program for sugar beet root maggots, to establish an application time of post-emergent insecticides for root maggot control and to determine the relationship between sugar beet root maggot population density and sugar beet yield at harvest	G.H. Whitfield P. Bergen	Agriculture Canada — Lethbridge and Alberta Sugar Company — Taber	20,660	29,576
Identification of Irrigation Practices that Reduce Black Point in Soft White Wheat • to determine the effects of irrigation practices and weather on the incidence and severity of black point in commercial soft white spring wheat fields in Alberta	R.L. Conner	Agriculture Canada — Lethbridge	14,740	14,035
Weed Control in Alfalfa for Seed Production • to find chemical treatments that will control Canada thistle, sow thistle and quack grass without damaging alfalfa	J.R. Moyer	Agriculture Canada — Lethbridge	32,228	36,980
Screening Winter Wheat for Resistance to Snow Mold Pathogens under Controlled Conditions • to assess snow mold damage and to determine the relative importance and distribution of snow mold pathogens in fall sown cereals and grasses in Alberta	D.A. Gaudet	Agriculture Canada — Lethbridge	26,500	31,336
Use of Ethylene for Control of Germination of Dormant Weed Seeds in Alberta Soils • to evaluate the use of ethylene and potassium nitrate to break the dormancy of weed seeds in order to reduce competitive abilities of weed seedlings	M.E. Spencer	University of Alberta — Edmonton	63,620	67,216
Effects of Chlorsulfuron on Succeeding Rotational Crops • to determine safe cropping intervals for alfalfa, lentils, potatoes, rapeseed and barley on three different soil series (one dryland and two irrigated) following an application of the pesticide called chlorsulfuron	R. Esau	Alberta Agriculture — Brooks	13,230	completed
The Effect of Copper on Stem Melanosis of Park and Other Wheat Cultivars • to evaluate the role of copper in resistance to melanosis in Park and other wheat cultivars	L.J. Piening	Agriculture Canada — Lacombe		30,918
Evaluation of Grasshopper Control with *Nosema locustae* and Insecticides on Bran Carrier • to test grasshopper control methods using biological control with a disease-causing microorganism and chemical control with insecticide-coated bran	D.L. Johnson	Agriculture Canada — Lethbridge		46,574

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
FORAGES				
Management Systems for Grass-Legume Forage Crops in the Peace River Region • to evaluate a method of seeding grass-legume forage stands with respect to productivity, efficiency of utilization of inputs and practical crop management	N.A. Fairey	Agriculture Canada — Beaverlodge	36,560	36,950
Soil Implant Inoculants for Alfalfa • to determine the effectiveness of soil implant inoculants under soil temperature and soil moisture stress conditions	W.A. Rice	Agriculture Canada — Beaverlodge	49,750	50,000
Maximization of *In vitro* Alfalfa Embryo Production to Develop Artificial Seed Systems • to optimize somatic embryo production for the development of artificial alfalfa seeds	T.H.H. Chen	Alberta Research Council — Edmonton	15,800	28,000
Improvement of Distribution of Digestible Dry Matter in Smooth and Meadow Bromegrass under Pasture Production • to improve pasture utilization via altering dry matter distribution in smooth brome through the use of a plant growth regulator (mefluidide) and to determine the usefulness of smooth brome and meadow brome crosses in the development of pasture crosses	V.S. Baron	Agriculture Canada — Lacombe	37,190	39,645
The Effects of Storage and Processing on Vitamin E Levels in Forages • to assess the vitamin E levels in forages from farms and ranches in central Alberta as related to time of cutting and to determine effects of field storage, exposure to air and temperature on vitamin E stability	P.J. Martin R. Westra	Norwest Feed Research Ltd. and Westra-Danen Assoc. Inc. — Edmonton	25,000	completed
Annual Forage Crops (Southern Alberta) • to find suitable annual forage crops and agronomic practices that will provide good quality, high yielding pastures in southern Alberta	R.G. Gaudiel	Alberta Agriculture — Brooks	68,500	60,000
Control of Field-Drying Hay • to compare single stem drying rates and raked swath and windrow (conditioned and unconditioned) drying rates of commonly used hay species in Alberta and to assess the effect of swath (windrow) raking schedules on drying rates	L.P. Milligan	University of Alberta — Edmonton	30,000	in progress
Effect of Grazing on Forage and Beef Production from Rough Fescue Rangeland in Central Alberta • to determine the long-term effects of various grazing treatments on native rough fescue rangeland and grass dominant rough fescue, and to develop a grazing system to maximize forage and cattle production from *Festuca stipa* grassland	A.W. Bailey	University of Alberta — Edmonton		50,000
Germination and Establishment of Pasture Grass Species • to study germination and establishment of meadow bromegrass, meadow foxtail and orchardgrass and to investigate osmoconditioning, or "priming", of grass seeds to improve germination and establishment	J.R. King	University of Alberta — Edmonton		26,100
Assessment of the Role of Abscisic Acid in Alfalfa Fall Dormancy and Regrowth After Cutting • to identify the role abscisic acid plays in fall dormancy and slow regrowth after cutting in order to aid development of a rapid screening method for selecting high yielding, winter hardy alfalfa genotypes	S.C. Chen	Alberta Research Council — Edmonton		26,000
Increasing Alfalfa Production During the Establishment Year • to determine if a blend of short-lived and long-lived alfalfa cultivars can increase establishment year yield without adversely affecting yields in subsequent years	J.S. McKenzie	Agriculture Canada — Beaverlodge		23,270

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
IRRIGATION				
Subsurface Drainage Depth and Spacing Criteria for Medium- to Fine-Textured Soils within Irrigated Alberta • to evaluate standard drainage formulae used to predict 'optimum' drain spacings for effective water table control and to determine what effect changes in drain depth have on practical soil reclamation	D.B. Harker T. Sommerfeldt	Alberta Agriculture and Agriculture Canada — Lethbridge	57,120	completed
Evaluation of Low Volume Wind Turbines for Pumping Water • to evaluate the potential for wind turbines to efficiently and economically pump water on drainage and irrigation projects in Alberta	B.A. Paterson	Alberta Agriculture — Lethbridge	30,000	in progress
Adaption of Downstream Control to a Vertically Hinged Automatic Check Structure • to automate downstream control structures of small irrigation laterals by adapting a vertically hinged checkgate	K.R. Craig	Underwood McLellan Ltd. — Lethbridge	63,500	completed
Development of Agricultural Subsurface Drainage Design Standards for Alberta • to obtain drain tile depth and spacing standards for key Alberta soils through determination of the "critical" water depth, recession rate and parameters needed to determine drain spacing	H.S. Vander Pluym	Alberta Agriculture — Lethbridge	58,700	in progress
Evaluation of Effectiveness of PVC Cutoff Curtains for Seepage Control Adjacent to Irrigation Canals • to evaluate PVC cutoff curtains installed through various methods of excavation, to develop guidelines for use of curtains and to develop improved installation methods	D.J. Convery	Hardy Associates Ltd. — Calgary		87,600
Downstream Automatic Control of a Series of Checks on an Irrigation Lateral • to develop an automated irrigation lateral with downstream control of all checkgates to assess system performance and improve equipment	T.G. Ayers S. Jonas	Underwood McLellan Ltd. and Alberta Agriculture — Lethbridge		128,200
LAND RESOURCES AND ENGINEERING				
Development of Fertilizer Recommendations for Irrigated Grains and Oilseed Crops in Alberta • to develop and refine nitrogen and phosphorus response curves for irrigated soft white spring wheat, durum wheat, canola, flax, hard red spring wheat and barley	R.H. McKenzie J.B. Bole	Alberta Agriculture and Agriculture Canada — Lethbridge	44,200	53,601
Conservation Tillage Practices for Cereal and Oilseed Crops in the Lower Peace River Region • to maintain or increase yields, conserve soil moisture and reduce production costs with conservation tillage practices on various soil types in the Peace River region	G.W. Clayton	Agriculture Canada — Fort Vermilion	55,000	58,050
Quantification of Soil Erosion in East-Central Alberta • to determine the impact of soil erosion on soil productivity through quantifying the rate of erosion on selected areas in east-central Alberta	R.W. Howitt	Alberta Research Council — Edmonton	23,550	40,500
Increasing Efficiency of Soil and Fall-Applied Fertilizer Nitrogen under Various Tillage Systems • to determine the magnitude of over-winter losses of mineral nitrogen from fall-applied nitrogen fertilizers and the relative efficiency of fall- versus spring-applied nitrogen	S.S. Malhi	Agriculture Canada — Lacombe	40,000	36,139
Feasibility of Zero Tillage in Central Alberta • to establish the feasibility of zero tillage through an economic analysis of cost/return data for conventional, minimum and zero tillage systems	P.A. O'Sullivan	Agriculture Canada — Lacombe	60,000	43,100

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
A Study of Water Erosion in the Peace River Region • to measure annual runoff, sediment yield, soil loss and erodibility under different management practices in the Peace River region	D.S. Chanasyk	University of Alberta — Edmonton	70,000	79,800
Economic Appraisal of On-Farm Drainage • to develop an effective method of assessing the economic feasibility of alternative drainage designs in Alberta	L.P. Apedaile	University of Alberta — Edmonton	15,900	in progress
Improving the Efficiency of Soil Nitrogen and Fertilizer Nitrogen for Different Tillage-Straw Systems • to determine the long-term nitrogen fertilizer needs for different methods of tillage (zero tillage versus conventional tillage) and straw handling systems (removal versus retention)	M. Nyborg	University of Alberta — Edmonton	65,000	62,980
Nutrient Supply and Budgets in Luvisolic Soils: Use of Manure and Role of Organisms • to determine the impact of nitrogen added through N_2 fixation and nitrogen removed by denitrification and to evaluate a technique for measuring the availability of manure N in luvisolic soils	J.A. Robertson	University of Alberta — Edmonton	86,096	89,769
The Effects of Post-Harvest Cultivation Practices on Springtime Soil Moisture • to quantify the effects of various routine cultivation practices on gain of soil moisture from snowmelt under dryland conditions in central Alberta	D.S. Chanasyk	University of Alberta — Edmonton	10,900	completed
A Study of Heat and Moisture Loads and Air Quality in Commercial Poultry Breeding Facilities • to establish heat and moisture loads, air quality and atmospheric contaminants in commercial poultry breeding facilities in Alberta and to determine the influence, if any, of management and/or housing practices on the thermal characteristics and air quality of such facilities	J.B. McQuitty	University of Alberta — Edmonton	48,870	in progress
Increasing Fertilizer Nitrogen Efficiency through Fertigation • to determine the efficiency of fertilizer nitrogen applied to irrigated crops in southern Alberta through irrigation systems (fertigation) at several stages of crop growth compared to fertilizer incorporated into the soil prior to seeding	J.B. Bole	Agriculture Canada — Lethbridge	26,100	30,380
Evaluation and Development of Furrow Openers for Seed and Fertilizer Placement under No-Till Conditions • to evaluate drills and furrow opener configurations with emphasis on effective seed and fertilizer placement under no-till conditions	C.W. Lindwall	Agriculture Canada — Lethbridge	25,000	143,700
The Effects of Soil Buffering Capacity on Phosphorus Fertilizer Recommendations • to calibrate optimum phosphorus levels for Alberta soils with a range of soil buffering capacities	J. Ashworth	Norwest Soil Research Ltd. — Edmonton	15,550	completed
An Investigation of Hydrogeological Processes Influencing Dryland Salinity • to identify problem recharge areas for dryland salinity and to develop a quantitative understanding of the dynamics of water and salt movement in the Blackspring Ridge area in order to provide baseline information for future control measures	R. Stein	Alberta Research Council — Edmonton	85,000	41,968
Interference with Phosphate Uptake from Multi-Nutrient Deep Bands • to establish the sensitivity of barley and canola to the uptake of radioactively labelled phosphate from a nitrogen-phosphorus fertilizer band	J.T. Harapiak	Western Co-operative Fertilizers Ltd. — Calgary		7,650

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Determination of Dominant Recharge Areas for Saline Seeps and Assessment of Saline Seep Control Measures • to assess the effectiveness of two recommended procedures for controlling saline seeps in dryland conditions	M.J. Hendry	Alberta Agriculture — Lethbridge		101,644
NON-RUMINANTS				
Development of a Serodiagnosis for Porcine Mycoplasmal Pneumonia • to develop a diagnostic test for enzootic porcine pneumonia in order to identify infected animals	G.W. Stemke	University of Alberta — Edmonton	55,164	40,705
Nutritional and Biochemical Studies in Horses • to examine long-term effects of overfeeding on bone development, exercise physiology and locomotion of growing horses between the ages of six and 24 months	N.F. Cymbaluk	Western College of Veterinary Medicine — Saskatoon	36,150	35,874
Prevention and Control of *Haemophilus pleuropneumoniae* in Swine • to develop a safe and effective vaccine which prevents acute death and reduces the proportion of pigs which become chronic shedders of the organism, and to evaluate Tialumin, a water-soluble antibiotic, for treatment of acutely sick pigs via their drinking water	P.J. Willson A.D. Osborne	Veterinary Infectious Disease Organization and Western College of Veterinary Medicine — Saskatoon	50,642	52,612
Cell Culture System for Production of a Vaccine for Hemorrhagic Enteritis in Turkeys and Splenomegaly in Chickens • to use a cell culture system to produce HE vaccine for field testing turkeys and chickens	J. van den Hurk	Veterinary Infectious Disease Organization — Saskatoon	48,665	59,464
A Comparison of Fertility of Frozen Semen, Fresh Semen and Natural Service in Swine Herds • to compare the farrowing rate and litter size of sows inseminated with frozen boar semen at various stages of estrus and to compare results when using frozen semen and liquid semen	E.G. Maynard	Alberta Agriculture — Edmonton	51,500	in progress
The Mobile Nylon Bag Technique for Determining the Nutritive Value in Feedstuffs for Pigs • to develop the Mobile Nylon Bag Technique for accurate and rapid measurement of the digestibility of protein and energy and amino acid availabilities in feedstuffs that are used in pig production in Alberta	W.C. Sauer	University of Alberta — Edmonton	18,000	32,900
Blood Chemistry Behavior of Chickens Exhibiting the Sudden Death Syndrome • to determine differences in blood chemistry and body temperatures between sudden death syndrome (SDS) chickens and live control chickens, and to search for behavior patterns which can be used to identify SDS chickens	J.R. Hunt	Agriculture Canada — Agassiz	24,300	23,000
Utilization of Canola Seed by Laying Hens • to evaluate canola seed as a source of energy and protein in laying hen diets in comparison to corn, wheat and barley	A. Shires	University of Alberta — Edmonton		28,000
Amino Acid Nutrition in Swine • to improve swine diet formulation practices by accounting for available amino acid levels in dietary ingredients and by maximizing the use of synthetic amino acids	W.C. Sauer	University of Alberta — Edmonton		32,400
Protein Metabolism During Fever and Infection in Domestic Livestock • to analyze the basis of muscle tissue loss during infection, and to study the effects of current veterinary drugs on reducing tissue loss	V.E. Baracos	University of Alberta — Edmonton		59,788

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
A Study of Reproductive Performance and Hormonal Status of Sows After Weaning • to characterize the endocrine mechanism(s) affecting post-weaning reproductive efficiency of sows and to determine the effects of hormonal status on conception and ovulation rates and embryo survival rates	F.X. Aherne A. Sather	University of Alberta — Edmonton and Agriculture Canada — Lacombe		16,450
The Effects of Weight and Fat Loss During Lactation on Sow Productivity and Hormone Status • to study the effects of feed intake level during sow lactation on endocrine status, weight loss and milk production of sows and growth rate of piglets	F.X. Aherne A. Sather	University of Alberta — Edmonton and Agriculture Canada — Lacombe		42,985
PROCESSING, TRANSPORTATION, MARKETING AND SOCIO-ECONOMICS				
Blending of Low Erucic Acid Rapeseed Oil for Utilization as a Dietary Fat • to assess the metabolic changes in laboratory animals as a result of having canola oil in regular rations	M.T. Clandinin	University of Toronto — Toronto	58,930	in progress
The Impact of Trade Barriers on the Canadian Canola Crushing Industry • to assess the economic impact of the Japanese edible oil tariff structure on the Alberta canola crushing industry	C.A. Carter	University of Manitoba — Winnipeg	18,500	7,000
Quality Evaluation of Canola Oils and Canola Oil Products • to study the storage and heat stability of currently available antioxidant-treated canola oils and canola oil products using odor evaluation and chemical analyses	Z.J. Hawrysh	University of Alberta — Edmonton	39,875	23,000
An Analysis of the Farm Production Unit with Recommendations for Improving Net Farm Income • to describe the contributions of farm production unit members to the farm operation and to identify the direct and indirect benefits of those contributions to net farm income	N. Keating	University of Alberta — Edmonton	32,640	in progress
Implications of *Salmonella* Contamination of Poultry Meat for Poultry Producers • to study the hazard posed by *Salmonella* and to evaluate production and processing controls to reduce its presence in poultry meat	M.E. Stiles	University of Alberta — Edmonton	40,500	30,000
Effects of Efficient Procedures and New Technologies on Beef Quality • to evaluate the effects of procedures and technologies on the eating quality and processing characteristics of beef	Z.J. Hawrysh	University of Alberta — Edmonton	35,000	25,000
Effects of Electrical Stimulation on Calcium Activated Neutral Protease and Z-Disc Actin in Beef • to explore the effects of electrical stimulation on the Calcium Activated Neutral Protease in postmortem beef muscle in order to enhance beef quality	F.H. Wolfe	University of Alberta — Edmonton	67,400	69,600
Analysis of Terramycin (Oxytetracycline) in Honey • to establish a microbiological testing regime and a chemical testing procedure for analyzing terramycin (a drug used to control bee diseases) in honey	P. Sporns L. Roth	University of Alberta and Alberta Agriculture — Edmonton	33,200	in progress
The Beef Price Cycle and Responses by Western Cow-Calf Producers to Changing Prices • to estimate short-run and long-run supply responses by cow-calf producers in western Canada to changing calf and feeder prices	J.D. Graham	University of British Columbia — Vancouver	12,984	completed

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Farm Management Field Laboratory (Phase 2) • to study on an ongoing basis the capital structure and earning performance of commercial farm operations	M.L. Lerohl	University of Alberta — Edmonton	59,190	in progress
Engineering Development and Economic Analysis of the Dehydrocooling Process • to develop and assess a method for freezing and drying fresh fruits and vegetables in terms of engineering requirements, energy needs, costs and product characteristics	M. Le Mageur	University of Alberta — Edmonton	60,566	65,000
Economic Assessment of Alternative Brush Control Methods • to provide an economic assessment of methods analyzed in a former Farming for the Future research project (''Comparison of Brush Control Methods for the Development and Maintenance of Grazing Lands'', A.W. Bailey)	M.L. Lerohl	University of Alberta — Edmonton	15,225	11,100
Efficacy of Selected Laundry Practices Used by Alberta Farmers in Removing Pesticide Residues from Clothing • to determine laundry practices and problems encountered by farmers in removing pesticide residues from clothing and to develop safe laundry procedures for pesticide-contaminated clothing	N. Kerr	University of Alberta — Edmonton	43,812	40,000
Evaluating Debt Contracts for Alberta Farmers: A Sensitivity Analysis • to study the ability of long-term farm debt instruments to reduce risk to Alberta farmers and ranchers in order to develop credit and long-term debt policies appropriate to the agricultural sector	R.G. Aukes	University of Manitoba — Winnipeg	23,670	in progress
An Integrated Bean Breeding, Bean Marketing Study • to identify and quantify export markets for dry beans and to integrate these findings into a bean breeding program	J.H. Latham G.A. Kemp	Alberta Agriculture — Edmonton and Agriculture Canada — Lethbridge		12,480
Analysis of Bee Repellent Residues in Honey • to develop methods to analyze honey for residue levels of phenol, benzaldehyde, butyric anhydride and other bee repellents and to investigate methods of minimizing contamination of honey with repellents	P. Sporns	University of Alberta — Edmonton		37,250
Analysis of Family Consumption Expenditures Related to Selected Farm Business Physical and Financial Variables • to identify family consumption expenditures for selected groups of farm families, to determine factors influencing these expenditures and to assess their effect on farm business	T.A. Petersen	University of Alberta — Edmonton		30,800
Effect of Changing Technology on the Structure of Family Grain Farms in Alberta • to examine the extent to which changes in grain production technology are altering the structure and economic prospects for family grain farms	L.P. Apedaile	University of Alberta — Edmonton		42,495
Performance of the Rapeseed Futures Market • to examine how much price change/risk is reduced by hedging strategies, to assess the effectiveness of rapeseed futures prices in predicting spot prices, and to evaluate the relationships between rapeseed futures prices, soybean futures prices and cash prices for canola	M.M. Veeman	University of Alberta — Edmonton		23,000
An Economic Evaluation of Tillage Management Systems in the Dark Brown Soil Zone • to assess the production economics of various tillage practices	L. Bauer	University of Alberta — Edmonton		57,630

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Export Markets for Western Canada Wheat: Trends and Market Mix • to evaluate international market prospects for non-traditional wheats especially in relation to production possibilities and to constraints affecting use of non-traditional wheats	M.M. Veeman	University of Alberta — Edmonton		29,750
Productivity Growth and Profitability in the Prairie Grains Sector • to measure and analyze agricultural productivity, particularly at the sectoral level in the Prairie grains industry	T.S. Veeman	University of Alberta — Edmonton		29,850
Incorporating Barley, Interest Rate and Exchange Rate Futures Contracts into the Hedging Program of an Alberta Beef Producer • to examine the potential of an extended hedging program to enhance cash flow for Alberta feedlots and to find ways of reducing producer debt loads through improved planning and better understanding of the futures market	W.A. Kerr	University of Calgary — Calgary		2,750
Retirement and Farm Transfer • to analyze retirement and estate planning data to establish trends in disposition of farms	N. Keating	University of Alberta — Edmonton		40,000
RUMINANTS				
Determination of the Efficacy of Methods Used to Fertility Test Beef Bulls • to establish the accuracy of available selection criteria (scrotal circumference, libido and seminal quality traits) for predicting fertility of young beef bulls used for multiple-sire breeding under range conditions	G.H. Coulter	Agriculture Canada — Lethbridge	62,000	39,300
Pathogenesis of "Nervous" Coccidiosis of Cattle • to determine the cause, treatment and prevention of "nervous" coccidiosis in cattle	J.E.C. Bellamy	Western College of Veterinary Medicine — Saskatoon	30,000	in progress
Studies of the Endocrinology and Seasonality of Ovulation and Estrus in the Ewe • to investigate the role of progesterone and daylength patterns in controlling seasonality in ewes	N.C. Rawlings	Western College of Veterinary Medicine — Saskatoon	27,000	30,000
Ralgro Effects on Production Traits, Carcass Yield and Meat Quality of Young Bulls • to determine whether Ralgro treatment in bulls from three to six months of age will reduce aggression and sexual interactions amongst feedlot bulls and the adverse meat quality caused by shipping and handling stresses	J.A. Newman	Agriculture Canada — Lacombe	35,000	in progress
Effects of Barley Bulk Density and Processing Method on Feedlot Performance of Finishing Beef • to compare average daily gain, average daily dry matter intake and feed consumed per unit gain for yearling beef steers fed finishing diets formulated with light, medium and heavy barley and to develop a price relationship, based on animal performance, between bushel weight and feeding value to aid in grain purchasing decisions by commercial feedlots	R.E. Grimson	Lakeside Research -- Brooks	38,000	completed
Bovine Respiratory Disease in Alberta Feedlots • to assess managerial and environmental circumstances which increase or decrease the risk of respiratory disease in feeder cattle and to identify management practices to be avoided and those which should be recommended to the feedlot industry for the control of respiratory diseases	T.L. Church S.D. Acres	Alberta Agriculture — Edmonton and Veterinary Infectious Disease Organization — Saskatoon	115,000	100,000

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Bovine Respiratory Disease: Virus-Bacteria Interactions • to develop better vaccines against the viral agents which cause shipping fever in cattle	L.A.B. Babiuk	Western College of Veterinary Medicine — Saskatoon	64,000	66,000
Bovine Enteric Viruses: Use of Monoclonal Antibodies to Identify Neutralizing Antigens • to test the feasibility of using monoclonal antibodies to protect calves from viral agents and to characterize important viral antigens	L.A.B. Babiuk	Western College of Veterinary Medicine — Saskatoon	30,000	40,000
Effect of Nutrients on Reproductive Function • to explore the interaction between specific nutrients and reproduction in cattle	J.G. Manns	Western College of Veterinary Medicine — Saskatoon	57,700	58,000
Field Testing of an *E. coli*-Rotavirus-Coronavirus Vaccine for Calf Scours • to field test for safety and efficacy an *E. coli*-rota-coronavirus vaccine for prevention of calf scours	S.D. Acres	Veterinary Infectious Disease Organization — Saskatoon	71,000	in progress
Identification and Purification of Protective *Pasteurella haemolytica* Antigens for Use as a Shipping Fever Vaccine • to identify the protective component(s) of *P. haemolytica* extracts against pneumonic pasteurellosis in calves	T.J.G. Raybould	Veterinary Infectious Disease Organization — Saskatoon	62,000	completed
Mechanism Mediating Ruminal Stasis in Ruminal Lactic Acidosis (Grain Overload) • to reveal the mechanism(s) mediating loss of forestomach motility in ruminants suffering from ruminal lactic acidosis in order that an effective treatment for preserving this motility can be developed	E.C. Crichlow	Western College of Veterinary Medicine — Saskatoon	23,000	24,000
Investigation of Depression and Death in Scouring Calves Caused by Acidosis: Pathogenesis and Treatment • to study the pathogenesis and treatment of acidosis in order to improve the therapy of scouring calves one to six weeks old	J.M. Naylor	Western College of Veterinary Medicine — Saskatoon	26,000	30,000
Evaluation of New Protein Systems for Dairy Cows • to test the validity and commerical application of new systems in a large-scale feeding trial with lactating dairy cows	J.J. Kennelly	University of Alberta — Edmonton	65,000	64,000
Efficiency of Utilization of Forage Energy • to determine why acetate is poorly utilized for energy gain when a high roughage ration is fed and to examine other reasons for the low efficiencies of use of roughages by growing and fattening livestock	G.W. Mathison	University of Alberta — Edmonton	35,000	35,000
Field Testing the University of Alberta Beef Synthetic Bulls • to field test the Beef Synthetic bulls developed at the University of Alberta ranch as a sire herd and to produce crossbred females to be used as a maternal breed type for commercial beef production	M.H. Makarechian	University of Alberta — Edmonton	10,000	in progress
Livestock Growth and Meat Production • to evaluate the effects of pre- and post-weaning growth parameters (weight and gain) on reproductive performance of heifers calving at two years of age, to develop an index based on body weight and gain measurements, and to find the optimum index range for achieving maximum reproductive efficiency	M.A. Price	University of Alberta — Edmonton	55,000	completed
Foraging Efficiency of Wapiti • to develop criteria for selecting an appropriate land base for wapiti (elk) farming and appropriate methods of range improvement and seasonal supplementary feeding	R.J. Hudson	University of Alberta — Edmonton	27,000	completed
Sulphur Dioxide Preservation of Damp Feed Grain • to ascertain the need for inclusion of an excretable cation with sulphur dioxide-treated grain in order to maximize utilization and to measure the feeding value and feasibility of sulphur dioxide-treated high moisture grain stored in a plastic enclosure	L.P. Milligan	University of Alberta — Edmonton	29,000	in progress

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Rumen Particle Size Reduction and Movement • to quantify the importance of chewing and fermentation in accomplishing particle size reduction in rumen digesta	L.P. Milligan	University of Alberta — Edmonton	36,000	37,000
Nuclear Magnetic Resonance (NMR) Examination of Forages • to define and refine a rapid, reliable and simple method of analyzing forages for digestibility, voluntary intake, energy utilization, etc., using high resolution ^{13}C-NMR (a non-destructive method of chemical identification and measurement)	L.P. Milligan R.M. Elofson R.D. Weisenburger	University of Alberta and Alberta Agriculture — Edmonton	40,000	41,000
Regulation of Skeletal Muscle Protein Growth in Cattle • to characterize factors which regulate protein turnover in farm animals and to quantify the effects of these factors on rates of skeletal muscle protein synthesis and degradation and to explain the mechanisms involved	J.R. Thompson	University of Alberta — Edmonton	54,000	55,500
Nutrient Effects on Energy Metabolism, Appetite and Cold Tolerance • to determine the effects of manipulating nutrient intake on the appetite, energy expenditure and cold tolerance of pigs and calves during winter	R.J. Christopherson	University of Alberta — Edmonton	26,000	27,000
Cold Resistance in Cattle • to determine the detrimental influences of the winter climate on Alberta's cattle industry and to recommend cattle selection, feeding and management practices in order to minimize losses in efficiency	R.J. Christopherson	University of Alberta — Edmonton	38,000	39,000
Influence of Temperature on Protein and Amino Acid Digestion in Ruminants • to determine the effect of a cold environment on the net uptake of amino acids by the digestive tracts of ruminant animals	R.J. Christopherson	University of Alberta — Edmonton	31,000	32,500
Microbial Digestion of Straw Chemically Treated and Supplemented to Improve its Nutrient Yield for Ruminants • to develop chemical pretreatments and supplementation methods to enhance the digestion of straw by rumen bacteria, thus transforming barley straw into an effective ruminant feed	K.-J. Cheng J.W. Costerton	Agriculture Canada — Lethbridge and University of Calgary — Calgary	34,000	53,000
Effects of Prebreeding Exposure to Bulls on Reproductive Performance of Beef Heifers • to examine the effects of the presence of epididymectomized bulls on the calving date and reproduction rate of heifers	M.H. Makarechian	University of Alberta — Edmonton	10,000	completed
Factors Influencing Reproductive Efficiency of Beef Cattle • to study relationships between testes size, libido score and semen quality and quantity and their effect on natural service fertility of bulls in pasture and to investigate factors such as weight, age, pre- and post-weaning gain on testicular development	M.H. Makarechian B.D. Callaghan	University of Alberta and Alberta Agriculture — Edmonton	15,000	completed
Effects of Early Weaning on Post-Weaning Performance of the Calf and Dam • to study the possible interaction effects of weaning date and breeding group on post-weaning performance of calves and cows	M.H. Makarechian	University of Alberta — Edmonton	12,500	12,500
Economic Analysis of the Impact of Delayed Breeding of Dairy Cows on Milk Production and Herd Health • to study the influence of delayed rebreeding on milk production, the productive life of dairy cows, and the economic returns to dairy producers	J.J. Kennelly	University of Alberta — Edmonton	55,000	in progress
Effects of Dietary Protein and Sulfur Supplements and Hormonal Implants on Growth Responses of Beef Steers • to evaluate the effects of protein and sulfur supplementation and growth implants on feedlot cattle	R.E. Grimson	Lakeside Research — Brooks		37,500

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Lamb Quality and Cutability Assessment in Relation to Carcass Grades and Processing and Packaging Systems • to develop improved carcass grade standards for lamb, especially in relation to the effects of new processing and packaging technology on meat quality, and to assess the palatability and consumer acceptability of various lamb cuts	L.E. Jeremiah	Agriculture Canada — Lacombe		64,000
Nutrition and Management of Wapiti • to evaluate the effects of winter feeding and forced weaning on the bioenergetics and behavior of wapiti calves and dams	R.J. Hudson	University of Alberta — Edmonton		40,000
Effect of Beta-Glucans in Barley on Digestion and Metabolism in Ruminants • to examine the reaction of the rumen and intestines to beta-glucans in barley in order to gather information on feedlot bloat and on the feeding value of barley	G.W. Mathison	University of Alberta — Edmonton		20,800
Effect of Growth Hormone and Frequency of Feeding on Milk Production and Milk Composition in Dairy Cows • to determine the influence of growth hormones, frequency of feeding, and administration of glucagon on milk yields and on the biological efficiency of milk production	J.J. Kennelly	University of Alberta — Edmonton		80,000
Protein and Energy Nutrition of Dairy Calves • to increase information on nutrient requirements of young dairy herd replacements, with emphasis on the protein and energy nutrition of calves	W.C. Sauer	University of Alberta — Edmonton		28,000
The Influence of Pre- and Post-Weaning Growth Rate on the Reproductive Performance of Beef Heifers • to evaluate the effects of pre- and post-weaning body weight and weight gain on the reproductive performance of two-year old heifers	M.A. Price	University of Alberta — Edmonton		36,000
Manipulation of Hormones in Sheep and Cattle to Improve Their Growth Rates • to verify that increases in growth rate and feed efficiency can be achieved through inducing lambs to produce antibodies against their own somatostatin and to attempt similar experiments with calves	G.J. Mears	Agriculture Canada — Lethbridge		42,000
SPECIAL CROPS				
Development of Sugar Beet Handling Procedures that Reduce Sugar Losses During Sugar Beet Harvest and Storage • to determine the effect of a truck filler on beet weight loss due to breakage and sugar loss during a prolonged period of storage, and to determine the relationship between root water status (turgidity) and beet damage with and without the use of a truck filler	Peter Bergen W.F. Boras	Alberta Sugar Company — Taber and Alberta Sugar Beet Growers Marketing Board — Lethbridge	24,100	32,800 withdrawn
Rooting of *In vitro*-Produced Shoots of Saskatoon (*Amelanchier alnifolia*) • to consistently produce high quality roots on 90 percent of the saskatoon shoots produced *in vitro* and to prevent shoots from going dormant after rooting	R.E. Harris	Roal Propagating Laboratory — Victoria	25,680	in progress
Field Production of Cut Flowers for Alberta Markets • to assess the possibility of replacing imported flowers with quality Alberta products for the maximum time Alberta growing conditions will allow	B.J. Godwin	Olds College — Olds	9,900	completed
The Influence of Physiological Age of Seed Tubers on the Yield of Alberta Potatoes • to determine the variation in physiological age of seed potatoes used by Alberta growers and to correlate physiological age differences with tuber yields	W.T. Andrew	University of Alberta — Edmonton	24,900	in progress

Project Title and Objective	Research Manager	Institution	Funding 1984-85	Funding 1985-86
Alternate Crop Varietal Development: Irrigated Soybeans and Dryland Safflower • to develop soybean and safflower varieties suitable for Alberta conditions	H.H. Muendel	Agriculture Canada — Lethbridge	65,900	75,628
Regional Potato Cultivar Evaluation • to select potato varieties with early maturity, disease and nematode resistance, superior and stable yield and desirable processing traits	D.R. Lynch	Agriculture Canada — Lethbridge	80,000	96,510
Perennial Flowers for Fresh and Dried Markets • to assess the feasibility of commercial outdoor production of selected perennial flower crops for the fresh cut and dried flower markets in Alberta	B.J. Godwin	Olds College — Olds		11,750
Special Crops Agronomic Studies for Central and North-Central Alberta • to screen pulse cultivars for adaptability to central and north-central Alberta conditions and to investigate the effects of seeding time, soil fertility and harvest methods on yield and quality	F.M. Mederick	Alberta Agriculture — Lacombe		49,668

ON-FARM DEMONSTRATION PROGRAM PROJECT SUMMARIES

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator*/ Location	Funding 1982-84	Awarded 1984-85
REGION I - SOUTHERN ALBERTA				
Zero Tillage vs Minimum Tillage Trial • to compare zero tillage with minimum tillage using conventional farm equipment	B.J. Knott *Stavely*	Ted Nibourg *Claresholm*	7,930	completed
Wheat and Barley Varietal Trials (Stubble) • to perform a trial with five spring and durum wheat varieties and six barley varieties on stubble land	Ronald Smith *Nanton*	Ted Nibourg *Claresholm*	620	completed
Wheat and Barley Varietal Trials on Summerfallow • to conduct a trial with five spring and durum wheat varieties and six barley varieties on fallow land	Marvin Vandervalk *Claresholm*	Ted Nibourg *Claresholm*	producer's expense	completed
Evaluation of the Warm Treatment of Swine Manure • to evaluate the reliability and operational ease of a combined solids-liquids separator/warm treatment process under Alberta conditions	Al Coutts *Bow Island*	Gregg Dill *Lethbridge*	8,700	7,573
Blackbird Control • to control blackbirds through the use of bird scaring devices	Tom Droog *Bow Island*	Dave Cubbon *Bow Island*	2,045	completed
Savory Grazing Method • to determine the effectiveness of the Savory Grazing Method under commercial ranch conditions in Alberta	Blake Holman Mary Holtman *Taber, Fort Macleod*	Carole Rex *Taber* Ted Nibourg *Claresholm*	40,269	in progress
Fertilizer Application Trials • to demonstrate the use of various types of fertilizer applicators on wheat in spring and fall	Casey Douglass *Vulcan*	Dennis Stretch *Vulcan*	4,058	report pending
Proper Inoculation of Pulse Crops • to adapt innovative inoculation procedures to farm-scale operations	Pulse Growers Association of Alberta *Lethbridge area*	Blair Roth *Lethbridge*	20,850	completed

* Project co-ordinators are Alberta Agriculture staff.

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator / Location	Funding 1982-84	Awarded 1984-85
Alfalfa in Controlling Saline Seeps • to compare tap root alfalfa and fibrous root alfalfa for reducing saline seeps	William Norris *Warner*	Don Wentz *Lethbridge*	4,374	1,263
Wind Power for Pumping Water • to design simple, reliable low-cost wind-powered equipment for pumping water	Norman Ward *Granum*	Ted Nibourg *Claresholm*	1,147	935
Demonstration of Cereal Grasses as Irrigated Pastures • to demonstrate that irrigated cereals can replace or complement perennial pastures for livestock grazing	Jerry Reti *Taber*	Carole Rex *Taber*	1,835	completed
Phosphate Fertilizer on Alfalfa • to assess the effects of phosphate fertilizer application on a stand of Angus alfalfa	Dan Loewen *Rosemary*	Gordon Frank *Brooks*	705	in progress
Crop Fallow and Continuous Cropping Using Zero and Conventional Tillage • to compare zero tillage with conventional tillage in continuous crop and crop-fallow wheat	Wayne Arrison Dave R. Kelly *Bassano*	Gordon Frank *Brooks*	2,241	completed
Handling of Corn Stover • to determine the quality and perishability of corn stover as cattle feed and to assess different processing methods	Robert L. Laidlaw *Bow Island*	Dave Cubbon *Bow Island*	3,328	completed
Fertility Trial for Continuous Crop Durum Wheat • to evaluate the effects of various fertilizer treatments on continuous crop dryland wheat yields	Albert Zoeteman *Fort Macleod*	Ted Nibourg *Claresholm*	260	report pending
Fertility Trial for Continuous Crop Barley • to evaluate the effects of various fertilizer treatments on continuous crop dryland barley yields	Bob Reach *Fort Macleod*	Ted Nibourg *Claresholm*	260	report pending
Electronic Bulletin Board System • to offer a message service along with information such as rainfall and market prices through on-farm computers	Garry Kennedy *Brant*	Dennis Stretch *Vulcan*		1,820
Obtaining Maximum Yields in Dry Beans • to assess the effects of new management techniques on yields of two common varieties of dry beans	C. Russell White *Bow Island*	Blair Roth *Lethbridge*	5,070	in progress
Polypay Sheep • to test the Polypay breed in intensive production and to compare its productivity with local breeds and crosses	John Balderson *Magrath*	Jim Hansen *Cardston*		11,900
Alfalfa Variety Trials • to compare dryland yields of different alfalfa varieties and to assess their effectiveness in controlling saline seeps	Barry Thomas *Warner*	Don Wentz *Lethbridge*		3,300
Pure Alfalfa vs Grass-Alfalfa Mix for Rooting Depth • to compare yields of pure alfalfa with those of grass-alfalfa and to assess their abilities to control saline seeps	Bruce Atkins *Warner*	Don Wentz *Lethbridge*		3,300
Snow Management • to demonstrate the use of snow management to increase spring soil moisture levels in a chinook area	Dryland Salinity Control Association *Southern Alberta*	Don Wentz *Lethbridge*		1,500
Alfalfa Seed Production • to collect dryland alfalfa seed production cost/return data, and to measure the effectiveness of alfalfa in reducing saline seeps	Don Welsh *Milk River*	Don Wentz *Lethbridge*		2,775
Effect of Row Spacing on the Yield of Spring Wheat • to assess the effect of various row spacings on yields of dryland Neepawa red spring wheat	Matt Schebel *Lethbridge*	Delyn Jensen *Lethbridge*		1,900

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Alfalfa Inoculation • to determine the yield difference between an inoculated and a non-inoculated alfalfa stand, and to compare different inoculants	John P. Lutz *Warner*	Don Wentz *Lethbridge*		3,300
Corn Stover Feeding • to assess corn stover through feed and digestibility trials	Robert L. Laidlaw *Bow Island*	Dave Cubbon *Bow Island*		2,200
Deep Plowing and Ripping of High Sodium Soils • to compare the effects of various plows and subsoilers on yields from high sodium soils	Terry Doran *Bow Island*	Dave Cubbon *Bow Island*		4,280
Comparison of Conventional vs Acid Fertilizers • to determine if phosphorus in acid fertilizers remains available for a longer period of time than in conventional fertilizers	Harold Kuehn *Warner*	Ross H. McKenzie *Lethbridge*		1,650
Biological Weed Control on Italian Rye Grass Sheep Pasture and Sheep Fence Evaluation • to test the effectiveness of a combination of annual rye grass and sheep for weed control and to evaluate four types of fencing	Geoff de Boer *Barons*	Michael Clawson *Lethbridge*		1,206
Transplanting Sugar Beets from Greenhouse to Field • to evaluate starting sugar beets in a greenhouse to reduce losses due to spring frosts, spring winds and insect infestations	Zoltan Gergely *Coaldale*	Michael Clawson *Lethbridge*		11,254
Yield Related to Seeding Width for Dryland Alfalfa • to determine the effect on alfalfa yields of various seeding widths and to measure the effect of alfalfa on saline seeps	Dennis Irvine *Barons*	Don Wentz *Lethbridge*		3,473
Dryland Alfalfa Fertilizer Trial • to evaluate the effect of fertilizers on dryland alfalfa and to measure the effect of alfalfa in controlling saline seeps	John Erdman *Barons*	Don Wentz *Lethbridge*		2,873
REGION II - SOUTH CENTRAL ALBERTA				
Effect of Trace Mineral Supplementation on Calf Gains and Cow Breeding Performance • to demonstrate the effect of feeding trace minerals to cows on native pastures	Dave Lathwell *Sundre*	Donald Milligan *Airdrie*	1,350	completed
Effect of Trace Mineral Supplementation on Calf Gains and Cow Breeding Performance • to demonstrate the effect of feeding trace minerals to cows on native pastures	James C. Hughes *Longview*	Donald Milligan *Airdrie*	1,350	completed
Preimmunization of Feeder Cattle • to assess the value of preimmunizing calves before selling them	Don J. Edge *Airdrie*	Donald Milligan *Airdrie*	550	completed
(A) Comparison of Weight Gains of Suckling Calves Implanted and Not Implanted with Ralgro and (B) Comparison of Weight Gains and Health Status of Weaned Calves in a Feedlot, Implanted Once and Twice with Growth Implants • to determine the value of using growth implants on suckling and weaned calves	Red Deer River Ranches *Sundre*	Donald Milligan *Airdrie*	1,000	completed
Special Crops Demonstration Trial • to evaluate the potential for growing several species of special crops	Chinook Applied Research Association *Hanna, Coronation*	Russ Horvey *Hanna* Brad Hansen *Coronation*	16,159	11,660
Snow Entrapment • to measure the effect of using double diverging deflectors on a swather to increase snow entrapment for greater soil moisture	Don Pryor *Three Hills*	Jack Hazelwood *Three Hills*	1,290	report pending

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator / Location	Funding 1982-84	Awarded 1984-85
Fertilizer Rejuvenation of an Aged Perennial Forage Stand • to use fall and spring broadcast fertilizer to prolong the life of a brome-alfalfa stand	Russel Mayberry *Hanna*	Lee Melvill *Hanna*	1,050	completed
Foxtail Barley Control • to increase awareness of the effectiveness of various chemicals to control foxtail barley	Willard Koch *Three Hills*	Jack Hazelwood *Three Hills*	250	report pending
Organic Matter Building • to promote the use of sweet clover underseeding and plowdown to replace summerfallow	S. Frank Davidson *Morrin*	Jack Hazelwood *Three Hills*	1,750	report pending
Evaluation of Moisture Conservation by Various Stubble Heights • to evaluate the ability of stubble cut to various heights to trap snow for soil moisture conservation	Chinook Applied Research Association *Oyen*	Larry Welsh *Airdrie*	2,035	1,406
Evaluation of Moisture Conservation of Continuous Cropping vs Summerfallow Rotation • to assess moisture levels and crop yields of continuous cropping and summerfallow systems	Chinook Applied Research Association *Youngstown*	Larry Welsh *Airdrie*	3,190	1,967
Evaluation of Moisture Conservation by Shelter Belts • to demonstrate and evaluate the potential of increased snow trap for improved moisture conservation by using shelter belts	Chinook Applied Research Association *Altario*	Larry Welsh *Airdrie*	705	2,319 completed
Nitrogen and Organic Matter Building • to promote the use of alfalfa underseeding as a replacement for summerfallow	Neil Cameron *Huxley*	Jack Hazelwood *Three Hills*	525	report pending
Pasture Sage Control • to demonstrate the chemical control of pasture sage	Chinook Applied Research Association *Hanna*	Russel Horvey *Hanna*	761	864
Alberta Certified Preconditioned Feeder Program: Calf Performance Trial • to assess preconditioned calves in terms of their economic value and feedlot performance	Donald Petersen *Sundre*	Steve Archibald *Olds*	640	completed
Evaluation of Spring Seeded Norstar Winter Wheat as Summer Pasture • to evaluate spring seeded winter wheat in comparison with other summer pastures in terms of carrying capacity, durability, digestibility and economics	Peter Hok *Cereal*	John Ruschkowski *Oyen*	2,047	completed
Solar Battery Charger Evaluation • to evaluate a solar collector for maintaining the charge on electric fence batteries	Charles W. Rosenau *Youngstown*	John Ruschkowski *Oyen*	1,000	completed
Grazing Annual Forages, Winter Wheat and Triticale • to determine the maximum production and grazing potential of spring seeded winter wheat and triticale for the foothills	Alastair Robertson *Longview*	Donald Milligan *Airdrie*	1,500	completed
Beef Breeding Management by Heat Synchronization • to utilize heat synchronization to shorten the breeding season, develop a more uniform calf crop and shorten the calving season	Pat Harvie *Priddis*	Donald Milligan *Airdrie*	3,100	completed
Summerfallow Tillage Reduction with Herbicides • to demonstrate herbicide use on summerfallow to reduce the number of tillage operations	Mervin Tetz *Three Hills*	Jack Hazelwood *Three Hills*	800	report pending
Sweet Clover Incorporation Demonstration Trial • to compare a Soil Master cultivator with a discer for incorporation of sweet clover into soil for improved soil conservation	Norman R. Storch *Hanna*	Lee Melvill *Hanna*	1,110	completed

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator / Location	Funding 1982-84	Awarded 1984-85
Out-of-Season Breeding of Lactating Columbia, Suffolk-Columbia and Hampshire-Columbia Ewes • to investigate the possibility of breeding sheep approximately every eight months through stimulation of lactating ewes	May Lockhart John Lockhart *Okotoks*	John Knapp *Airdrie*		550 completed
Ammoniating Chaff • to determine the feasibility of ammoniating chaff to improve its nutrient value	Hans Mundt *Chinook*	John Ruschkowski *Oyen*		2,400
Increase of Alfalfa Yields under Irrigation Using Recommended Fertilizer Application • to demonstrate the economics of fertilizing an irrigated alfalfa crop	Pat Cammaert *Rockyford*	Art Edwards *Strathmore*		2,123
Increasing Hay and Pasture Production on Dryland Using Annuals • to assess Norstar winter wheat as supplementary pasture, and to compare the returns from pasture with those from grain	Henry Cuthbertson *Lyalta*	Art Edwards *Strathmore*		4,942
Winter Wheat Production in a Continuous Crop Rotation in South Central Alberta • to evaluate winter wheat production in terms of weed control and fertilizer requirements, continous cropping and survival	W.M. Burton *Olds*	Ron Woolf *Olds*		3,350
Predator Control for Sheep using Electric Fencing • to design and build an electric fence to reduce predation on sheep	Bob Francis *Priddis*	John Knapp *Airdrie*		5,112
Norstar Winter Wheat Seeded with Barley Silage for Fall Grazing • to demonstrate underseeding of winter wheat for use as late summer and fall pasture	Robert Carr *Okotoks*	Allen Toly *High River*		4,590
Native Range Direct Reseeding • to assess the feasibility of increasing the productivity of native range by seeding several grass types	Murray Woods *Oyen*	John Ruschkowski *Oyen*		3,800
Early Breeding of Heifers • to compare heifers bred at seven to nine months of age with those bred at 14 to 15 months in terms of economics and productivity	Donald J. Bezjack *Cochrane*	Donald Milligan *Airdrie*		790
REGION III - NORTH CENTRAL ALBERTA				
Pasture Improvement Demonstration • to demonstrate that good forage management, use of adapted species and rotational grazing can improve pasture quality	Geoff Hoar David Hoar *Innisfail*	Ted Darling *Innisfail*	5,300	1,907
Ralgro Implant Trial with Bulls • to evaluate the effect of implants on the growth, sexual development, feedlot management and carcass characteristics of bull calves	Ty Lund *Alhambra*	Dwight Karren *Lethbridge*	3,800	report pending
Central Alberta High Moisture Barley Study • to collect data on high moisture barley yields, quality, harvest dates and feeding results	Melvin Stickland *Red Deer*	Gordon McNaughton *Red Deer*	5,500	report pending
Effects of Bovaid and Growth Implants on Yearling Steers and Nursing Bull Calves • to determine the effects of implants and fly control tags on weight gains of yearlings and calves	Dave G. Carlyle *Bentley*	Dwight Karren *Lethbridge*	8,102	completed
Effects of Growth Implants on the Growth and Sexual Development of Bull, Steer and Heifer Calves • to determine the effects of implants and of early or late castration on calves	Stan Marcinek Ron Marcinek *Condor*	Tom Seaborn *Rocky Mountain House*	2,688	completed

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator / Location	Funding 1982-84	Awarded 1984-85
Effects of Trace Minerals on the Growth of Suckling Calves and the Response to Ralgro Implants in Bull Calves • to determine the effects of trace minerals and implants on calves	Gordon Young *Leslieville*	Dwight Karren *Lethbridge*	1,469	completed
Swath Turner • to build prototype equipment for turning swath to increase the drying rate of forage	Andrew J. Murdoch *Eckville*	Gordon McNaughton *Red Deer*	2,100	completed
Free Stall Dairy Barn • to compare conventional stalls and stalls with brisket boards for cleanliness, cow comfort, bedding requirements and cow preference	Case Korver *Rocky Mountain House*	Tom Seaborn *Rocky Mountain House*	1,465	report pending
Soil Moisture Conservation • to use stubble barriers to increase snow entrapment for improved soil moisture	Bob A. Sommerville *Endiang*	Andy Birch *Stettler*	250	completed
Soil Moisture Conservation Practice • to increase snow entrapment by creating stubble barriers	Lindsay Penosky *Botha*	Andy Birch *Stettler*	250	completed
Liming and Ripping Acid Solonetzic Soil • to demonstrate the benefits of liming acid soils and of ripping solonetzic soils to increase alfalfa and barley yields	G. David Hughes *Wetaskiwin*	Pat Ramsey *Wetaskiwin*	2,387	in progress
Waterproof Bin Skirts • to design and construct a mold to produce fiberglass bin skirts for moisture proofing steel bin floors	Warren Henderson *Forestburg*	Peter Gamache *Sedgewick*	700	completed
Solonetzic Soil Improvement • to improve solonetzic soil productivity by deep tillage and lime applications	Ralph Klassen *Stettler*	Glen Werner *Stettler*	7,000	in progress
Heat Exchanger • to build and test a heat exchanger for use on an existing exhaust fan	Albert Stolte *Rocky Mountain House*	Tom Seaborn *Rocky Mountain House*	1,040	completed
Automatic Air Inlet Control — Dairy Barn • to adapt commercial ventilation equipment for automatic control of inlet air and temperature	Greg Harink *Lacombe*	Neil Miller *Lacombe*	1,200	completed
Beef Pasture Demonstration Project • to compare the economics of a high production grazing system for beef cattle against the economics of grain production	Larry A. Steeves *Meeting Creek*	Dale ZoBell *Red Deer*	4,696	2,830
Vicogen Trial • to demonstrate the effectiveness of Vicogen vaccine in preventing calf scours	Ron Marcinek Stan Marcinek *Condor*	Dwight Karren *Lethbridge*	1,205	completed
Buck Lake Fencing Rotational Grazing Experiment • to increase beef production by improved grass sward, lengthened grazing season and improved fencing design	Jerry Holtman *Buck Lake*	Gordon Bacon *Rimbey*	2,655	completed
Tempered Grain for Feedlot Cattle • to determine the effect of tempering grain with water on the growth rate and feed efficiency of feedlot cattle	Murray Stauffer *Eckville*	Dwight Karren *Lethbridge*	6,375	completed
Ralgro at Birth and Bovaid on Calves • to compare growth implants for calves at birth and at branding, to determine insecticide ear tag effects and to assess interactions between ear tags and implants	Gordon Young *Leslieville*	Dwight Karren *Lethbridge*	1,708	completed
Effect of Synovex, Ralgro and Bovaid on Suckling Calves • to compare two growth implants and determine their interaction with insecticide ear tags	Dave G. Carlyle *Bentley*	Dwight Karren *Lethbridge*		1,278 completed

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Ralgro Implant Trial with Bulls • to evaluate growth implants in bull calves from birth to slaughter	Ty Lund *Alhambra*	Dwight Karren *Lethbridge*	525	report pending
Effects of Bovaid and Debantic Insecticide Ear Tags on Cow-Calf Operations • to evaluate the effectiveness of two types of insecticide ear tags	Arthur Ziegler *Stettler*	Glen Werner *Stettler*	3,978	completed
Ammoniation of Large Round Hay Bales • to determine if ammoniation is a practical way to preserve high moisture hay in large round bales	Roy D. Munro *Innisfail*	Ted Darling *Innisfail*	907	completed
Canola Underseeded to Winter Wheat as Fall Pasture • to examine the feasibility of using canola underseeded to winter wheat as fall pasture	Rudy Gerber *Kelsey*	David Samm *Camrose*	2,245	completed
Evaluation of Implant Programs and Bovaid on Calves to Yearlings • to determine the most effective implant program in relation to castration date, reaction to stress and use of insecticide ear tags	Stan Marcinek Ron Marcinek *Condor*	Dwight Karren *Lethbridge*	1,437	1,843 completed
Portable Lambing Facility • to develop a portable lambing structure to improve the care of lambs and ewes	Ian Clark Deb Clark *Bentley*	Stuart Tucker *Lacombe*	2,100	399
Soil Project — Deep Ripping • to determine the effects of deep ripping heavy clay soils on crop production	Leslie W. Deuchar *Delburne*	Peter Funk *Red Deer*		900
Soil Project — Deep Ripping • to determine the effects of deep ripping heavy clay soils on crop production	K. Gongaware *Delburne*	Peter Funk *Red Deer*		900
Mosquito and Fly Control on Range Cattle • to demonstrate continual treatment of livestock with registered pesticides for long-term mosquito and fly control	Bill Hunt *Endiang*	Glen Werner *Stettler*		5,810
Daysland Wheat and Barley Varietal Trials • to assess local wheat and barley yields, lodging, shattering and disease characteristics	Tom Zwack Ed Zwack *Daysland*	Peter Gamache *Sedgewick*		612
Banding vs Conventional Fertilizer Placement — Fall • to compare fall application of banded fertilizer with conventional fertilizer treatments on sandy, rolling land	Morley Blanch *Gwynne*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Spring • to compare spring application of banded fertilizer with conventional fertilizer treatments on wet soils	Hector Dansereau *Millet*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Spring • to compare spring application of banded fertilizer with conventional fertilizer treatments on land with a deep topsoil	Lorne H. Fuhrhop *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Spring • to compare spring application of banded fertilizer with conventional fertilizer treatments on alluvial and aeolian soils	Donald S. Kelly *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Spring • to compare spring application of banded fertilizer with conventional fertilizer treatments on degraded black soils	Heinz Kummer *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Fall • to compare fall application of banded fertilizer with conventional fertilizer treatments on grey wooded soils	Danny Cameron Reid J. Cameron *Millet*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975

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Banding vs Conventional Fertilizer Placement — Fall • to compare fall application of banded fertilizer with conventional fertilizer treatments on sandy soils	Arne Carlson *Gwynne*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Fall • to compare fall application of banded fertilizer with conventional fertilizer treatments on sandy soils	George Jones *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Fall • to compare fall application of banded fertilizer with conventional fertilizer treatments on gently rolling land	Stevan Lindholm *New Norway*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Banding vs Conventional Fertilizer Placement — Spring • to compare spring application of banded fertilizer with conventional fertilizer treatments on heavy black soils	Doug Reimchen *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*		975
Corn Silage Production for Dairy Cows in the Camrose Area • to determine if corn silage is an economical crop for dairy producers, to compare corn silage with traditional silages, and to assess corn silage's nutritional qualities	Ivo Weder *Camrose*	Dale ZoBell *Red Deer*		1,156 completed
Round Bale Hay Silage (Continuous Plastic Bags) • to evaluate the "Bag-o-matic" round bale silage system with respect to weather proofing the haying operation, reducing storage losses and improving feed quality	Dean Doll *Innisfail*	Ted Darling *Innisfail*		1,310
Crop Yield Management • to assess the value of an on-combine grain weigh scale as a management tool to assist in improving yields	Craig Shaw *Lacombe*	Neil Miller *Lacombe*		600
Preservation of High Moisture Grain with Sulfur Dioxide • to assess sulfur dioxide as a preservative for high moisture grain	Warren Elofson Robin Elofson *Ponoka*	Rick Williams *Ponoka*		3,285
Ammoniation of Alfalfa-Grass Hay • to demonstrate the preservation of high moisture alfalfa-grass hay by ammoniation, and to assess the hay's nutritional quality and the economics of ammoniation	Merlin Stewart *Stettler*	Andy Birch *Stettler*		600 completed
Value of Temperature Monitoring and Control for Grain Storage • to evaluate a computer-based temperature monitoring system in a natural air drying system with respect to functionality and cost	David Crompton *Tees*	Robert Borg *Red Deer*		9,220
Agronomic and Nutritional Comparison of Fall Seeded vs Spring Seeded Cereals for Silage • to compare winter wheat, fall rye and spring seeded barley as to winter hardiness, weed control, yield, quality and cost	Gordon McFadden *Bluffton*	Gordon Bacon *Rimbey*		382
REGION IV - NORTHEAST ALBERTA				
Evaluation of Cultural Practices Used to Extend the Growing Season, Increase Production and Improve Quality of Vegetables • to increase the production and quality of fruits and vegetables through innovative cultural techniques	Robert Grey Bernice Grey *Fort McMurray*	Harvey Yoder *Lac La Biche*	8,600	1,671 completed
Comparison of Smooth Wire Suspension Fencing with Standard Barbed Wire Fencing • to compare five-strand smooth wire suspension fencing to standard four-strand barbed wire fencing	Douglas S. Millar *St. Paul*	Kirsty Ross *St. Paul*	3,200	completed
Zero (Minimum) Tillage Demonstration • to study the feasibility of zero and minimum tillage	Keith Brower *Wainwright*	Brian Wilson *Wainwright*	6,632	4,200

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator / Location	Funding 1982-84	Awarded 1984-85
Cultivated Blueberry Crop Trial • to determine which blueberry varieties and cultural practices are most productive in the Bonnyville area	Ed Reddecliff Eleanor Reddecliff *Bonnyville*	Ronald Hockridge *Bonnyville*	3,500	in progress
Application of Passive Solar Collectors to Slant Wall Farm Shops • to create an inexpensive method of controlling the temperature in a farm shop	Kirk Harrold *Lamont*	Emile de Milliano *Lamont*	2,760	200
Pasture Demonstration Project • to extend the grazing season and increase beef production by using recommended pasture species, fertilizer rates and rotational grazing	Gary Mouille *Lac La Biche*	Harvey Yoder *Lac La Biche*	5,335	report pending
Comparisons of Various Varieties of Cereal Grains for Silage • to compare various cereal varieties for silage, to relate cutting stage to nutritional yield, and to assess costs and benefits	Ernest Livingstone Doug E. Livingstone *Vermilion*	George Rock *Camrose* Mike Doggart *Edmonton*	7,700	7,360 completed
Grazing Demonstration • to extend the grazing season and increase production through proper grazing management, and to test high tensile wire for fencing	Philip Menard *Plamondon*	Harvey Yoder *Lac La Biche*	4,787	report pending
Beef Cow-Calf Rotational Grazing Demonstration • to demonstrate a rotational grazing system using new varieties, chemical fertilizers and proper grazing management	Gordon Ceretzke *Andrew*	Tennis Marx *Lamont*	4,895	3,990
Grass Species Trial • to determine the feasibility of growing meadow foxtail and meadow bromegrass in the Wainwright area	Ronald Mansfield *Wainwright*	Brian Wilson *Wainwright*	1,750	in progress
Round Bale Silage • to use individual bagging to maintain the nutritive value of spring rye feed and to compare its quality with greenfeed	Douglas Bullock *Metiskow*	Agnes Whiting *Provost*	1,334	completed
Feasibility of Wild Rice Production in Northeastern Alberta • to determine the potential of wild rice production in several lakes north of Lac La Biche	Thomas Lambert, Northern Alberta Wild Rice Growers Association *Wandering River*	Harvey Yoder *Lac La Biche*	3,000	completed
A Comparison of Aspen Regrowth Control Methods • to demonstrate the control of aspen regrowth by aerial spraying of herbicides at various stages of plant growth	Neil Cory *Grand Centre*	Ronald Hockridge *Bonnyville*		7,500
Effect of the Medata Blowaway System on Piglet Mortality Due to Crushing • to assess a new farrowing crate attachment under local conditions	Richard C. Scoffom *Vilna*	Grant Gillund *Smoky Lake*	900	completed
Pasture Rejuvenation and Renovation for Northeastern Alberta • to demonstrate six methods of pasture rejuvenation and renovation	Douglas S. Millar *St. Paul*	Kirsty Ross *St. Paul*		6,160
Rotational Grazing Project • to demonstrate rotational grazing using fertilizers and new grass varieties	Vaughn L. Hanson *Viking*	Jerome Manchur *Ryley*	2,440	in progress
Peas as an Alternate Forage Crop • to demonstrate the use of peas for higher protein forage, improved soil fertility and continuous cropping	Gordon Graves Dwayne Kalinsky *Iron River*	Ronald Hockridge *Bonnyville*		4,800
Seeding Techniques for Altai and Russian Wild Rye • to fall seed wild rye into clean stubble so that the rye produces seed before grazing begins, and to use wild rye for spring and fall grazing	Henry Rosing *Innisfree*	Ted Ford *Vegreville*		2,900 postponed

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Intensive Beef Cow-Calf Grazing • to demonstrate short-term intensive grazing for cow-calf production, to assess electric fencing, and to evaluate the feasibility of extending the grazing season	Del Huchulak *Warspite*	Grant Gillund *Smoky Lake*		5,000
Alternative Methods of Nitrogen Application on Hayland • to evaluate three methods of nitrogen application for effectiveness and costs	Charles Magneson Terry Magneson *Ryley*	Jerome Manchur *Ryley*		2,080
Rotational Grazing for Dairy Cows • to demonstrate rotational grazing for dairy cows with respect to forage production, milk yield and economics	Grant Clarke *Vilna*	Grant Gillund *Smoky Lake*		4,100
Potassium and Sulfur Supplementation of Alfalfa • to assess the effects of potassium and sulfur fertilizer on alfalfa grown on soils marginal to deficient in these nutrients	Hans Mayer *Vegreville*	Ted Ford *Vegreville*		1,583 withdrawn
Liming and Deep Ripping • to demonstrate liming to improve soil acidity and increase forage production, and to use deep ripping to improve soil structure	Daryl Charlton *Czar*	Agnes Whiting *Provost*		3,224
Feasibility of Deep Subsoiling Using Deep Tillage Equipment • to determine the feasibility of deep tilling grey wooded soil to improve tilth and subsurface water movement	Peter D. Keryluk *Two Hills*	Shane Dobson *Two Hills*		1,060
Drill Row Spacing Seeding Demonstration • to test a smaller seed row spacing for possible benefits such as improved weed control and resistance to lodging	Eric Sikora *Warspite*	Don Christensen *Smoky Lake*		3,575
REGION V - NORTHWEST ALBERTA				
Grain Feeding Yearlings on Pasture • to evaluate limit feeding and grain feeding pasture yearlings and to assess the layout of rotational grazing pastures	Keith English *Dapp*	Ken Lopetinsky *Barrhead*	5,623	completed
Late Summer Pasture and Grain vs Feedlot for Finishing Yearling Heifers • to compare the economics of supplemental feeding in late summer with placing cattle directly into a feedlot	K. Murray Holt *Sangudo*	Rob Hand *Barrhead*	2,880	completed
Solar Heated Air for Grain Drying and Aeration and Building Space Heating • to use solar energy for cheap and efficient grain drying and building heating	Schwanke Farms Ltd. *Sangudo*	Lloyd Giebelhaus *Sangudo* Wayne Winchell *Barrhead*	5,000	completed
Dairy Pasture Management and Fertility • to demonstrate rotational grazing for dairy cattle with recommended legume and grass species, fertilizers, grazing and rest periods, and stocking rates	Ernie Siemens *Rochester*	Shane Dobson *Athabasca*	9,654	in progress
Two Four-Wheel Drive Tractors Hooked in Tandem, Using One Operator • to hook two tractors in tandem to pull extra-long farm implements	Jerry Bauer *Thorhild*	John VanderLeest *Thorhild*	2,950	completed
Chaff Evaluation, Athabasca District • to evaluate chaff quality from various cereal crops and to assess cow performance when fed chaff	David Bencharsky *Boyle*	Gary Berger *Athabasca*	5,450	completed
Greenhouse and Dairy Barn Project • to use waste heat from a dairy barn for supplemental heat in a small commercial greenhouse	Dick DeKlerk Frank Blenke *Leduc*	Janette McDonald Adam *Leduc*	3,000	report pending

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Location	Funding 1982-84	Awarded 1984-85
Grain Feeding Yearlings in Late Season on Rotationally Grazed Pasture • to evaluate limit feeding and supplementary grain feeding of pastured yearlings in late season	Keith English *Dapp*	Rob Hand *Barrhead*	4,529	completed
Maximizing Returns through Beef Cattle Utilizing Annual Pastures and Rotational Grazing • to demonstrate the economic benefits of rotationally grazing beef cattle on annual pastures	Ray Olesky *Sangudo*	Lloyd Giebelhaus *Sangudo*	6,545	5,925 completed
Development and Evaluation of Grazing Management Strategies on Rotationally and Intensively Grazed Pastures • to evaluate various grazing management techniques for highest cattle weight gains per acre	Pembina Forage Association *Westlock*	Ken Lopetinsky *Barrhead*	6,200	266
Pasture Establishment and Rotational Grazing on Heavy Clay Soil • to demonstrate an efficient grazing management program using proper forages and a rotational grazing system	West Central Forage Association *Wildwood*	Fred Young *Evansburg*	16,015	report pending
Late Summer Pasture and Grain vs Feedlot for Finishing Yearling Heifers • to determine whether pasture plus supplemental grain is cheaper than feedlot feeding to finish yearling heifers	K. Murray Holt *Sangudo*	Rob Hand *Barrhead*	2,880	report pending
Round Bale Silage: An Alternative to Hay • to compare round bale silage to red clover hay, to explore methods of storing round bale silage, and to test different balers	Ray Fausak *Evansburg*	Fred Young *Evansburg*	2,522	2,980 completed
Restructuring of Peat Soils • to improve the texture of peat soil by mixing the upper peat layer with the lower clay loam layer	Ross E. Smith *Fawcett*	Rick Bjorge *Westlock*	1,679	completed
Canola Meal for Dairy Cattle • to demonstrate the value of canola meal as a protein supplement for lactating dairy cattle	Anthony Stadnyk *Westlock*	Rob Hand *Barrhead*	4,598	report pending
Recycling Dairy Cattle Wastes • to measure the benefits of including recycled dairy cattle wastes in feeder cattle rations in terms of cost, intake and weight gain	Gordon D. Fraser *Westlock*	Rick Bjorge *Westlock*	4,425	completed
Subsurface Drainage Using Weeping Tile • to demonstrate the value of using weeping tile to reduce wet areas in arable fields	Sid Jeffery *Barrhead*	Allen Macaulay *Barrhead*		7,050
Evaluation of Nitrogen Application Levels on Grey Wooded Soils • to demonstrate various applications of nitrogen on common grain crops	Earl Lawson *Drayton Valley*	Doug Walkey *Drayton Valley*		500 completed
Renovating Forage Stands on Peat Soils • to evaluate different methods to re-establish forage stands on peat soils	Charles Goupil *Athabasca*	Gary Berger *Athabasca*		3,650
PCW Agra-Tech Seed Treatment • to evaluate a seed treatment for improving the rate of emergence, percent emergence, days to maturity and yield of Neepawa wheat	Voris Molsberry *Leduc*	Janette McDonald Adam *Leduc*	1,500	completed
Intensive Cereal Management Techniques Applied to Barley Production in Parkland Alberta • to combine three techniques of intensive cereal management and assess their effects on yield, economic returns, lodging and disease	Ken Nelson *Westlock*	Rick Bjorge *Westlock*		6,950
Economics of Fertilizer Application on Pasture • to demonstrate the effect of nitrogen on pasture carrying capacity and to demonstrate new fencing techniques	Charles Nichol *Barrhead*	Allen Macaulay *Barrhead*		2,849 completed
Fertility Levels on Corn Silage • to evaluate the effect of fertilizer on yields of two corn varieties	F. Paul Bryant *Leduc*	Janette McDonald Adam *Leduc*		888 completed

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator / Location	Funding 1982-84	Awarded 1984-85
Artificial Heat Synchronization for Controlled Beef Cattle Breeding • to assess the economics of artificial heat synchronization as to calving interval, labor requirements and bull capability	Ron Herrmann Ilke Herrmann *Newbrook*	John VanderLeest *Thorhild*		1,815
Feeding Liquid Whey to Lactating Dairy Cows • to measure milk production, forage consumption, body weight changes and manure production for dairy cattle fed liquid whey	John Allam *Ardrossan*	Dave Ward *Sherwood Park*		4,025 completed
Integrated Broad Spectrum Control of Livestock-Related Insect Pests • to test Ciovap, a contact and systemic compound, for control of livestock pests such as blackflies, horn flies and mosquitoes	Stephen Shwetz *Waskatenau*	John VanderLeest *Thorhild*		950
PCW Agra-Tech Seed Treatment • to test the effect on yield and emergence when seed barley is impregnated with water	Roger Prefontaine *Legal*	John Hladky *Morinville*		1,300 completed
Clover Plowdown Evaluation • to determine the effects on soil nitrogen and tilth of different clover plowdown dates and methods of incorporation	Wes Kirk *Abee*	John VanderLeest *Thorhild*		481
The Effect of Phosphate Placement on Barley and Wheat • to assess the effects on barley and wheat yields of different placements of phosphate	Bryan Radke *Barrhead*	Jim Soldan *Barrhead*		2,107
Use of Spot-On to Control Horn Flies • to determine if an application of the insecticide Spot-On can control horn flies over an entire summer	Ross Moon *Cherhill*	Rob Hand *Barrhead*		570
Quack Grass Control • to compare chemical and cultural methods of quack grass control, and to assess a quack grass root picker	Stan Wiskel *Athabasca*	Shane Dobson *Athabasca*		585
Soil Amendments Using Industrial Ash • to demonstrate the use of bottom ash to improve organic soils by reducing acidity and by adding micronutrients such as calcium, zinc and selenium	Ken Thiessen *Tomahawk*	Doug Walkey *Drayton Valley*		3,265
Production of Cereal and Forb Selections for Drying to Supply Floral Trade • to demonstrate the production, harvesting, coloring and packaging of dried plant materials	William B. Hutchison *Whitecourt*	Grant Gillund *Smoky Lake*		1,500
Cultivation of *Pleurotus ostreatus* (Mushrooms) in Woodlot and Greenhouse Rotations • to develop a 70-day greenhouse production system for increased mushroom production	William B. Hutchison *Whitecourt*	T.R. Krahn *Brooks*		1,500
Installation of Foggers to Control Dust and Fungus Spores in Total Confinement Turkey Barns • to assess effects of controlled humidity and reduced airborne spores on turkey mortality and weight gains	John Chalifoux *Thorhild*	John VanderLeest *Thorhild*		888
REGION VI - PEACE RIVER				
Raised Lambing Crates • to demonstrate the benefits of confining pregnant ewes to raised crates for two or more days before delivery	L. Trevor Jones *Fairview*	Nora Paulovich *Fairview*	3,822	completed
Zero Tillage vs Minimum Tillage vs Conventional Tillage Trial • to investigate the yields and economics of various tillage practices	Mike Gach *Nampa*	Ray Maubert *Peace River*	11,000	1,750 completed
Automatic Depth Control for Farm Implements • to develop an electrical depth control device for use on a wing-type cultivator	Dan Ropchan *Grimshaw*	Ray Maubert *Peace River*	1,950	report pending

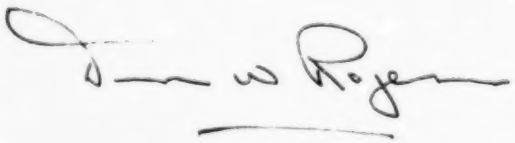
Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator / Location	Funding Awarded 1982-84	1984-85
Hog Barn Heat Exchanger • to construct and test a prototype of a simple, functional heat exchanger	Steve Pain *Nampa*	Ray Maubert *Peace River* Duane Wood *Fairview*	2,770	completed
Wood Heated Hot-Water-to-Hot-Air Heating System • to evaluate a wood heating system designed to heat a farm residence and shop	Brian Leitch *Grimshaw*	Ray Maubert *Peace River*	5,500	report pending
Second Year No-Till Companion Crop in Establishing Forage Seed Crops • to grow a zero tillage crop on land underseeded the previous year to a forage seed crop	W. Peter Harris *Beaverlodge*	Miles Kuryvial *Grande Prairie*	3,800	completed
Comparative Fertilizer Trials • to obtain yield data comparing deep banded urea, anhydrous application and broadcast application	Robin Hopkins *Peace River*	Ray Maubert *Peace River*	4,200	1,468
Increased Honey Production through Continuous Rapeseed (Canola) Bloom • to increase honey production by extending the honey-flow period through early and late seedings of canola	John Woodburn *Grimshaw*	Ray Maubert *Peace River* Donald MacDonald *Falher*	7,670	completed
Assessing the Value of Propane Guns in Protecting Spring Bee Yards from Bear Damage • to evaluate the use of propane scare devices to reduce bear damage to bee hives	Jean Paradis *Girouxville* Gerard Paradis *Guy*	Dave Spencer *Falher*	1,660	completed
Echo Ranch Pasture Project • to demonstrate effective pasture establishment using rotational grazing and optimal soil fertilization	Dewey J. Stickney *Manning*	Elaine Ryl *Manning*	14,083	12,564
Reclamation Study • to increase soil productivity by improving soil acidity, structure and tilth and by reducing salinity	Harry Rowney *Sexsmith*	Miles Kuryvial *Grande Prairie* G.R. Coy *Fairview*	6,345	1,460 completed
Queen Rearing and Overwintering • to foster honeybee stock self-sufficiency through overwintering, queen rearing techniques and using Alberta-bred bees	Jerry Awram *Hines Creek* Dennis McKenna *Fairview*	Nora Paulovich *Fairview*	11,935	9,395
Effect of Shelter Size on Alfalfa Pollination with Leafcutter Bees • to determine how many acres of alfalfa can be pollinated by a single shelter of leafcutter bees	Robert Gartly *Eaglesham* Nick Konopelka *Rycroft* Raymond Wood *Three Creeks*	Fred Potrebenko *Eaglesham*	24,920	6,000 completed
Irrigation in the Lower Peace River Region • to demonstrate the effect of irrigation on wheat, barley, canola and alfalfa yields	Al Toews *Fort Vermilion*	Arvid Aasen *Fort Vermilion*		8,000
Intensive Grain Management Project • to assess the advantages of using plant growth regulators in combination with post-emergent fertilizer	Hans Vander Pol *Tangent*	Fred Potrebenko *Eaglesham*		2,500 withdrawn
Chemical-Cultural Control of Canada Thistle and Perennial Sow Thistle • to evaluate several herbicides used in combination with cultural procedures for the control of two types of thistle	Mike Sanocki *Eaglesham*	Fred Potrebenko *Eaglesham*		3,800
Indoor Wintering of Five Frame Nucleus Hives • to demonstrate a method of wintering honey bees indoors and to promote the introduction of Alberta Bee stock	Jules Guerin *Watino*	Donald MacDonald *Falher*		4,324

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM — AUDITOR'S REPORT

To the Members of the Agricultural
Research Council of Alberta

I have examined the balance sheet of the Agricultural Research Council of Alberta Farming for the Future Program as at March 31, 1985 and the statement of revenue, expenditure and unexpended funds for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Program as at March 31, 1985 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.



F.C.A.
Auditor General

Edmonton, Alberta
June 14, 1985

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM

Balance Sheet
As at March 31, 1985

	1985	1984
ASSETS		
Current:		
Deposits in trust (Note 3)	**$1,735,790**	$1,461,258
Due from the Alberta Heritage Savings Trust Fund	**74,391**	62,966
	$1,810,181	$1,524,224
LIABILITIES		
Current:		
Research grants payable	**$1,333,355**	$1,030,673
Holdbacks payable	**115,091**	88,478
Other accounts payable	**8,949**	51,677
	$1,457,395	$1,170,828
Unexpended funds	**352,786**	353,396
	$1,810,181	$1,524,224

Statement of Revenue, Expenditure and Unexpended Funds
For the Year Ended March 31, 1985

	1985	1984
Revenue		
Contributions from the Province of Alberta:		
Alberta Heritage Savings Trust Fund (Note 4)	**$4,803,501**	$7,422,684
Expenditure		
Research grants, Schedule 1:		
Universities	**2,109,137**	3,802,080
Other	**793,822**	943,352
Research grants for administered projects, Schedule 2	**1,298,359**	2,155,324
Research grants for projects under the On-Farm Demonstration Program, Schedule 3	**275,404**	301,022
Research grants under the Graduate Student Research Support Program	**(2,165)**	118,624
Supplies and services	**200,131**	57,405
Administrative personnel costs	**129,423**	257,365
	4,804,111	7,635,172
Excess of expenditure over revenue	**610**	212,488
Unexpended funds at beginning of year	**353,396**	565,884
Unexpended funds at end of year	**$ 352,786**	$ 353,396

The accompanying notes are part of these financial statements.

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM

NOTES TO THE FINANCIAL STATEMENTS
MARCH 31, 1985

Note 1 — Authority

The Farming for the Future Program operates under the authority of the Department of Agriculture Act, Chapter D-12, Revised Statutes of Alberta 1980.

Pursuant to section 6 of the Act, the Program was established by Ministerial Order under the administration of the Agricultural Research Council of Alberta.

Note 2 — Significant Accounting Policies

(a) Research Grants

Research grants are recorded in these financial statements when grants have been approved for payment by the Minister of Agriculture and conditions of the grants have been formally accepted by the researchers. Unexpended balances of grant funds held in researchers' accounts are not reflected in these financial statements.

Grant funds which are returned to the Program after the completion of the project are reflected in the financial statements as a reduction of current expenditure.

(b) Capital Assets

Capital assets purchased from program funds are the property of the Province of Alberta and accordingly are not reflected in these financial statements.

(c) Administration Expenses

Certain administration expenses are provided by the Province of Alberta at no cost to the Program, and accordingly are not reflected in these financial statements.

(d) Changes in Financial Position

A statement of changes in financial position is not provided as disclosure in these financial statements is considered to be adequate.

Note 3 — Deposits in Trust

Deposits in trust consist of deposits held as follows:

	1985	1984
The University of Alberta	$1,588,053	$1,347,243
General Trust Account, Province of Alberta	113,167	97,293
Alberta Research Council	34,570	16,722
	$1,735,790	$1,461,258

Note 4 — Contributions from the Province of Alberta

The Appropriation (Alberta Heritage Savings Trust Fund, Capital Projects Division) Act, 1984-85 provided for payments to the Program to a maximum of $5,000,000 for the year ended March 31, 1985 (1984 $7,500,000). This provision which enabled the Program to receive funds up to the stated maximum lapsed at March 31, 1985.

Note 5 — Commitments

As at March 31, 1985 the Program had commitments totalling approximately $3,600,000 (1984 $3,400,000) with respect to unadvanced amounts on grant applications approved by the Council but where the conditions had not been formally accepted by researchers or payments approved by the Minister of Agriculture.

Note 6 — Comparative Figures

The 1984 figures have been restated where necessary to conform to 1985 presentation.

Note 7 — Approval of Financial Statements

These financial statements were approved by management.

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM

Schedule of Research Grants
For the Year Ended March 31, 1985

Schedule 1

	1985	1984
Universities:		
The University of Alberta	$2,006,762	$3,303,280
The University of Toronto	58,930	83,900
The University of Manitoba	42,170	29,500
The University of British Columbia	12,984	—
The University of Calgary	2,500	6,700
The University of Saskatchewan	(14,209)	337,700
Queen's University	—	41,000
	2,109,137	3,802,080
Other:		
Western College of Veterinary Medicine	293,850	—
Alberta Research Council	124,350	—
Agriculture Canada:		
Saskatchewan	109,570	—
British Columbia	60,300	—
Underwood McLellan Limited	63,500	—
Norwest Soil Research Ltd.	40,550	17,600
Lakeside Research	38,000	—
Alberta Sugar Company	24,100	—
Applied Research and Development	17,685	30,514
Western Cooperative Fertilizers Ltd.	16,680	—
Olds College	9,900	20,000
Pirker Apiaries	1,671	3,050
Monenco	(6,334)	65,581
Veterinary Infectious Disease Organization	—	701,607
Pedology Consultants	—	50,000
Alberta Livestock Transplants Ltd.	—	35,000
Fairview College	—	13,100
C.W. Farmland Reclamation Ltd.	—	6,900
	793,822	943,352
	$2,902,959	$4,745,432

Schedule of Research Grants for Administered Projects
For the Year Ended March 31, 1985

Schedule 2

	1985	1984
Agriculture Canada:		
Lethbridge	$ 423,126	$ 390,486
Beaverlodge	364,354	416,825
Lacombe	168,286	484,348
Fort Vermilion	53,375	40,000
Saskatoon	16,500	87,350
Melfort	—	61,900
Vancouver	—	38,500
Winnipeg	—	23,600
Agassiz	—	21,000
Alberta Department of Agriculture:		
Lethbridge	195,560	130,535
Brooks	76,860	112,000
Edmonton	49,513	269,780
Lacombe	14,449	79,000
Grants refunded	(63,664)	—
	$1,298,359	$2,155,324

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM

Schedule of Research Grants for Projects Under the On-Farm Demonstration Program For the Year Ended March 31, 1985

Schedule 3

	1985	1984
Region:		
Lethbridge	**$ 58,187**	$ 68,302
Vermilion	**55,196**	42,683
Airdrie	**45,422**	25,236
Barrhead	**43,413**	63,039
Red Deer	**38,552**	26,778
Fairview	**34,634**	74,984
	$275,404	$301,022

STATISTICAL TABLES

Distribution of Research Program Projects and Estimated Funding by Program Area — 1984-85

Program Area	Number of Projects	Percent of Total Number	Funding Awarded	Percent of Total Awarded
Cereals and Oilseeds	6	6.0	$598,356	13.8
Crop Protection and Entomology	12	11.9	332,534	7.6
Forages	7	6.9	262,800	6.0
Irrigation	4	4.0	209,320	4.8
Land Resources and Engineering	15	14.9	671,166	15.4
Non-Ruminants	7	6.9	284,421	6.5
Processing, Transportation, Marketing and Socio-Economics	14	13.8	541,492	12.5
Ruminants	30	29.7	1,213,200	28.1
Special Crops	6	5.9	230,480	5.3
TOTAL	101		$4,343,769	

Distribution of Research Program Projects and Estimated Funding by Institution — 1984-85

Institution	Number of Projects	Percent of Total Number	Funding Awarded	Percent of Total Awarded
Agriculture Canada	23	22.8	$1,320,384	30.4
Alberta Agriculture	9	8.9	452,750	10.4
Alberta Research Council	3	3.0	124,350	2.9
Olds College	1	1.0	9,900	0.2
Private Industry	7	6.9	208,510	4.8
University of Alberta	42	41.6	1,587,634	36.5
University of British Columbia	1	1.0	12,984	0.3
University of Manitoba	2	2.0	42,170	1.0
University of Toronto	1	1.0	58,930	1.4
Veterinary Infectious Disease Organization	4	3.9	232,307	5.3
Western College of Veterinary Medicine	8	7.9	293,850	6.8
TOTAL	101		$4,343,769	

Distribution of Research Program Projects and Estimated Funding by Program Area — 1985-86

Program Area	Number of New Projects	Number of Renewed Projects	Funding Awarded	Percent of Total Awarded
Cereals and Oilseeds	2	5	$654,392	13.6
Crop Protection and Entomology	2	10	427,090	8.8
Forages	4	5	339,965	7.0
Irrigation	2	0	215,800	4.5
Land Resources and Engineering	2	11	789,281	16.4
Non-Ruminants	5	6	424,178	8.8
Processing, Transportation, Marketing and Socio-Economics	10	8	576,705	11.9
Ruminants	8	18	1,132,100	23.5
Special Crops	2	3	266,356	5.5
TOTAL	37	66	$4,825,867	

STATISTICAL TABLES

Distribution of Research Program Projects and Estimated Funding by Institution **1985-86**

Institution	Number of New Projects	Number of Renewed Projects	Funding Awarded	Percent of Total Awarded
Agriculture Canada	6	22	$1,687,538	35.0
Alberta Agriculture	3	4	412,978	8.6
Alberta Research Council	1	3	136,468	2.8
Olds College	1	—	11,750	0.2
Private Industry	4	2	313,690	6.5
University of Alberta	21	25	1,857,743	38.5
University of Calgary	1	—	2,750	0.1
University of Manitoba	—	1	7,000	0.1
Veterinary Infectious Disease Organization	—	2	112,076	2.3
Western College of Veterinary Medicine	—	7	283,874	5.9
TOTAL	37	66	$4,825,867	

Distribution of Research Program Projects and Estimated Funding by Year

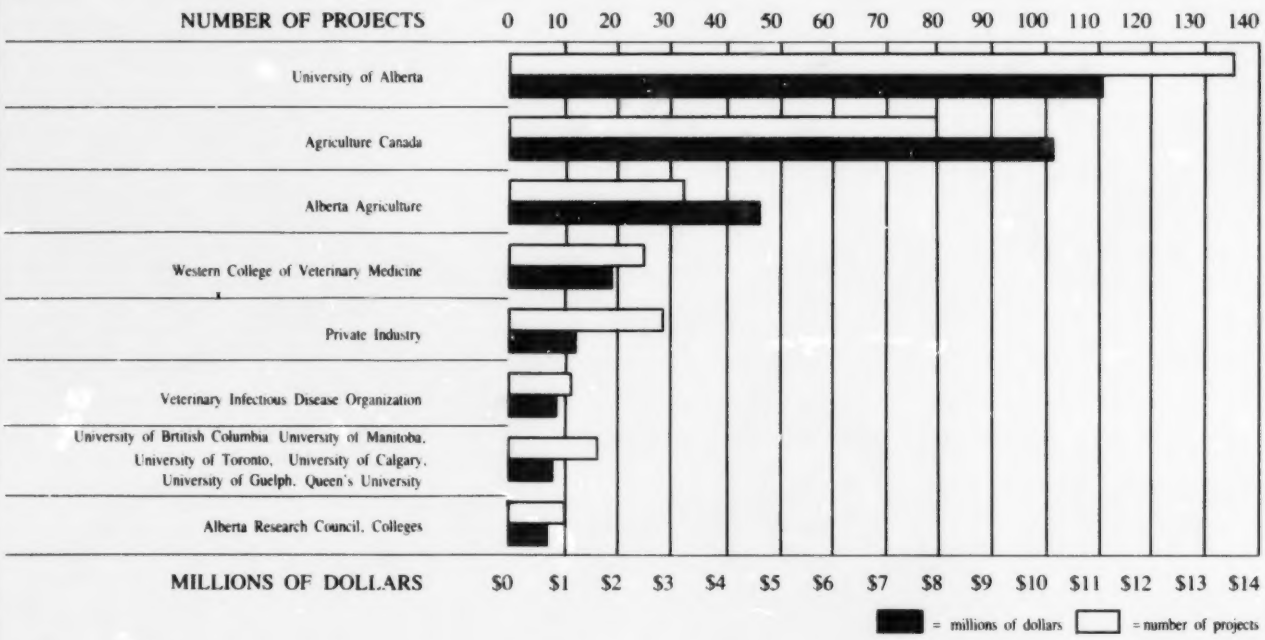
	New Projects		Renewed Projects		Total	
Year	Number	Funding	Number	Funding	Number	Funding
First Mandate						
1979-80	54	$2,133,680	—	$ —	54	$2,133,680
1980-81	31	980,465	51	2,210,642	82	3,191,107
1981-82	25	761,915	80	3,281,402	105	4,043,317
1982-83	40	1,594,500	101	4,116,911	141	5,711,411
1983-84	49	2,439,675	93	4,602,785	142	7,042,460
Subtotal	199					$22,121,975
Second Mandate						
1984-85	101	4,343,769	—	—	101	4,343,769
1985-86	37	1,483,079	66	3,342,788	103	4,825,867
Subtotal	138					$9,173,636
TOTAL	337					$31,291,611

Distribution of On-Farm Demonstration Program Projects and Estimated Funding by Region **1984-85**

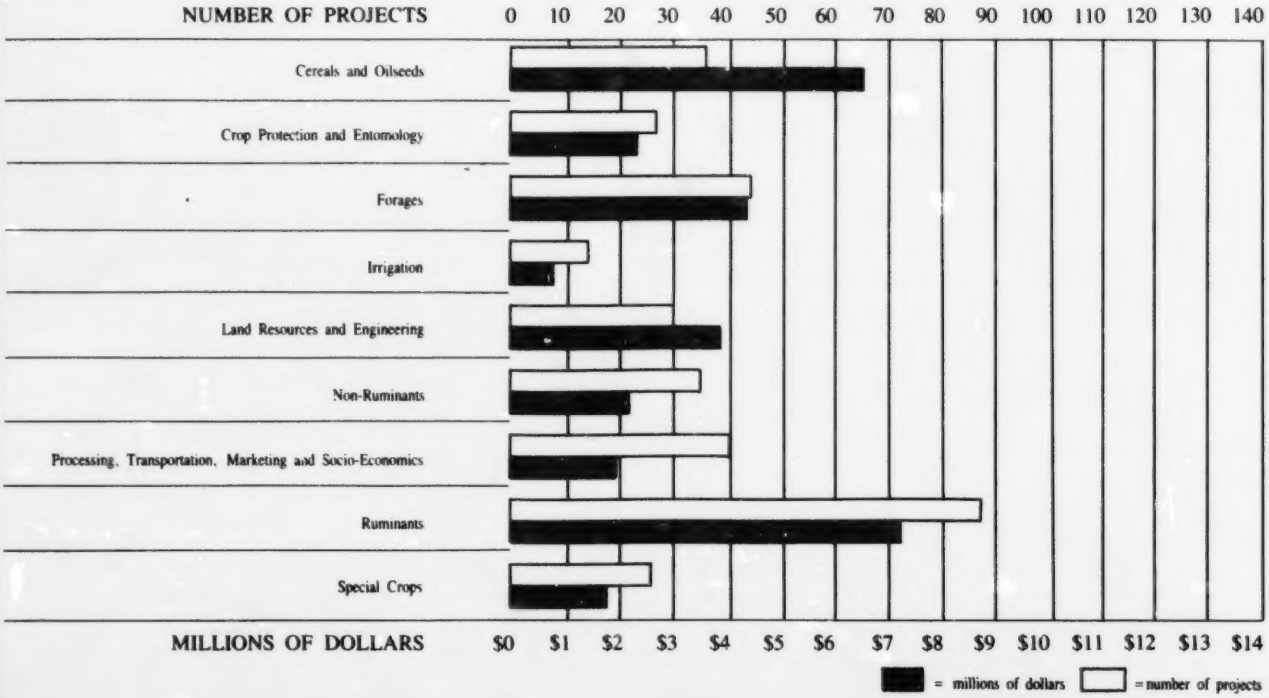
	Number of Projects		
Region	New	Renewed	Funds Awarded
Region I — Southern Alberta	15	3	$66,502
Region II — South Central Alberta	9	5	45,873
Region III — North Central Alberta	22	4	42,782
Region IV — Northeast Alberta	11	4	59,404
Region V — Northwest Alberta	18	3	50,045
Region VI — Peace River	4	6	51,260
TOTAL	79	25	$315,866

STATISTICAL TABLES

Distribution of Research Program Projects and Estimated Funding by Institution **1979-80 to 1985-86**


NUMBER OF PROJECTS
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
University of Alberta
Agriculture Canada
Alberta Agriculture
Western College of Veterinary Medicine
Private Industry
Veterinary Infectious Disease Organization
University of British Columbia, University of Manitoba, University of Toronto, University of Calgary, University of Guelph, Queen's University
Alberta Research Council, Colleges
MILLIONS OF DOLLARS
$0 $1 $2 $3 $4 $5 $6 $7 $8 $9 $10 $11 $12 $13 $14
= millions of dollars
= number of projects

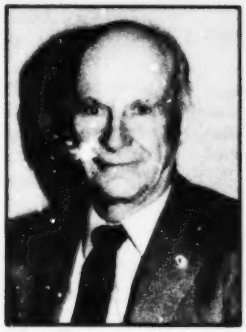
Distribution of Research Program Projects and Estimated Funding by Program Area **1979-80 to 1985-86**


NUMBER OF PROJECTS
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
Cereals and Oilseeds
Crop Protection and Entomology
Forages
Irrigation
Land Resources and Engineering
Non-Ruminants
Processing, Transportation, Marketing and Socio-Economics
Ruminants
Special Crops
MILLIONS OF DOLLARS
$0 $1 $2 $3 $4 $5 $6 $7 $8 $9 $10 $11 $12 $13 $14
= millions of dollars
= number of projects

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA

Hon. E.L. Fjordbotten
Minister of Agriculture
Chairman

Mr. H.B. McEwen
Deputy Minister
Alberta Agriculture
Vice-Chairman



Mr. C.E. Anderson
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Barrhead

Dr. R.T. Berg
Dean, Faculty of
Agriculture and Forestry
University of Alberta

Mr. J.E. Butler
Producer
Youngstown

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Beaverlodge

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Penhold

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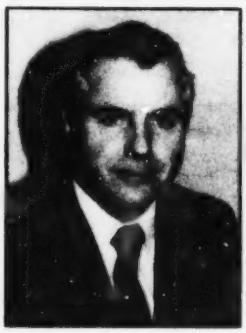
Secretary

Mr. N.I. Pengelly
MLA
Innisfail



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* Indicates new members.

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* *Indicates Regional Review Committee members who will be stepping down in 1985-86.*

** *Indicates new Regional Review Committee members replacing those who will be stepping down in 1985-86.*

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The Secretary
Agricultural Research Council of Alberta
Research Division, Alberta Agriculture
#206 J. G. O'Donoghue Building
7000 - 113 Street
Edmonton, Alberta
T6H 5T6

Photography Marilyn Doggart Brian Bucholz
Editor Evelyn Shapka
Design Don Myhre